

Ascend Cannabis Co.

Agricultural Manufacturing

The Challenge

Family-owned Ascend Cannabis Co. in Denver, Colorado, is not just committed to providing premium, pesticide-free cannabis. They built their business around sustainable growth and operational practices. As demand for cannabis continues to grow with legalization, the company needed to relocate to expand its commercial growing, processing, and shipping capabilities. However, while constructing their new 50,000-square-foot facility in a remote area 15 miles outside the town of Pueblo, it became clear that utility could supply neither the amount nor the quality of power needed to run operations efficiently and effectively. Further, the power the utility could provide was extremely expensive. Additionally, Ascend Cannabis's diesel gensets powered their lighting systems. The fuel and its delivery were expensive, and the generators required a lot of maintenance. The company needed a better solution.

Working with Capstone Green Energy Distributor Horizon Power, Ascend Cannabis eagerly embraced concepts that went beyond its energy needs to address both conservation and efficiency. The result was a trigeneration system that provided electricity, heating, and cooling while reducing the facility's carbon footprint.



As demand for cannabis has grown exponentially with legalization, this facility experienced the need for additional reliable power as operations expanded. Capstone's highly-efficient microturbine technology has allowed the customer to realize the many benefits of generating their own on-site electricity, and simultaneously generating heating and cooling - while also reducing electricity consumption, emissions and cost."

— Sam Henry, President
Horizon Power Systems

Power Profile

Customer

Ascend Cannabis Co.

Location

Denver, Colorado, U.S.A.

Commissioned

November, 2020

Fuel

Liquid Natural Gas

Technologies

- 1 CI1000S Microturbine

Capstone Green Energy Distributor

Horizon Power Systems



**Smarter Energy
for a Cleaner Future**



One C1000S Microturbine fueled by liquid natural gas provides the Ascend Growing and Processing Facility in Denver, Colorado with electricity, heating, and cooling while reducing the facility's carbon footprint.

The Solution

A few key characteristics of the new trigeneration system is that it is reliable, scalable, and provides the facility's hot water. Inside the facility, a sophisticated automated system monitors and controls temperature and humidity conditions. Any disruption in power would lead to significant quality or product loss, so reliability was the utmost priority. The system, built around a liquid natural gas-fueled C1000S, also captures exhaust from the turbines to produce the facility's hot water. Lastly, the system is scalable, allowing for an expansion of the facility such as the one targeted for February 2022. The company is supporting this expansion with the addition of a second C1000S in February that will increase the capacity of the system.

Energy loads within the facility vary considerably depending on the season. More power is required in the winter when there is less sunlight and less power is needed in the summer when the days are longer. To support the variability, the system's modular configuration allows facility managers to run one, two, or three engines depending on demand.

One year after installation, Ascend added an absorption chiller that utilizes the system's excess thermal energy to generate chilled water for the site's cooling loads.

The Results

The new system solved multiple challenges the site faced. By providing essential, reliable prime power on-site, it eliminated the need for expensive transmission lines. There were also significant savings in making the shift to less expensive liquid natural gas from diesel fuel. Since Capstone Green Energy microturbines have a single moving part and run at ultra-high

efficiency, maintenance needs are minimal. An added benefit to the system is the low noise output, making the entire facility a more pleasant atmosphere for people and the life surrounding.

For a business that depends on a healthy environment, Ascend Cannabis placed a high value on the environmental benefits the trigeneration system provided. Not only does the system meet stringent Colorado Air Quality guidelines, it reduces their carbon footprint by improving emissions, energy efficiency, maximized water usage, and noise pollution.

Capstone C1000S Microturbine



A C1000S Microturbine provides 1MW of reliable electrical power in one small, ultra-low emission, and highly efficient package.