

Breuil Cervinia District Heating Plant

Government/Municipal



The Challenge

Remote mountain resorts are often subject to electric reliability problems during harsh weather conditions, with a consequent inconvenience for residents and commerce.

Italy's mountain municipalities were the country's pioneers in the installation of district heating networks. The reduced city extensions – combined with a high use of heat for buildings throughout the year – has led to the use of district heating networks for their economic and technical-environmental advantages.

The municipality of Cervinia – the location of Italy's most renowned Breuil-Cervinia ski resort – is no exception to the need for reliable electrical supply.

The Solution

The municipality has constructed a district heating network which is expected to double its extension in ensuing years.

In district heating systems, each user's boiler is removed and connected to a single hot water distribution network. This makes it possible to produce heat at higher efficiency levels and with better control of the polluting emissions released into the atmosphere. When the heat is produced through a cogeneration plant, the production cycle works more efficiently resulting in increased energy savings.

The Energetica S.p.A. supports local administrations in the preparation of energy plans and serves as an expert partner to identify the best solutions to achieve energy savings and improve environmental quality. Energetica S.p.A. owns the new district heating plant in Cervinia, which focuses on bringing in hot water for heating. In the past, oil/wood chip boilers were used which led to a significant increase of bad emissions into the atmosphere, says Dario Alberto Babuin, Supply Chain Manager for IBT Europe GmbH.

Power Profile

Customer

Centrale di Teleriscaldamento di Cervinia, Breuil-Cervinia

Location

Cervinia, AO, Italy

Commissioned

April 2018

Fuel


Natural Gas

Technologies

■ One Dual Mode C1000S HPNG

Capstone Turbine Distributor

IBT Europe GmbH

A wide-angle photograph of a snowy ski resort. In the foreground, several people are sitting on the snow, some with their skis. In the background, a ski lift is visible against a backdrop of snow-capped mountains under a clear blue sky. A semi-transparent grey box with white text is overlaid on the left side of the image.

“Mountain communities unfortunately cannot yet rely on a stable electricity supply from the grid. For this reason, a dual mode C1000S standalone system was selected.”

– Dario Alberto Babuin, Supply Chain Manager
IBT Europe GmbH

Reliable power when and where you need it. Clean and simple.



A dual mode Capstone C1000S microturbine operates in a CHP application in Italy for a district heating plant in Breuil.

In April 2018, Energetica S.p.A. commissioned a Capstone microturbine to provide a reliable solution for generating electricity and steam for the Breuil-Cervinia district heating plant. Babuin points out the IBT and Energetica project partnership developed because of IBT's ability to provide a unique solution that utilized a Capstone microturbine instead of a classic piston engine. "Mountain communities unfortunately cannot yet rely on a stable electricity supply from the grid. For this reason, a dual mode C1000S standalone system was selected," says Babuin. The C1000S dual mode high pressure natural gas enables continuity of electrical energy and heat service for the area's population in the event of a temporary malfunction of the national grid. IBT was able to install the solution at 2,000 meters above sea level. "Having very few scheduled maintenances is important during winter time because the site is difficult to access because of snow," says Babuin. Very low atmospheric emissions are another benefit. The thermal demand for superheated water at 105°C (221°F) can be produced with specially-designed heat recovery modules. At the boiler output, the fumes are subsequently introduced into the atmosphere while the hot water is fed into the distribution network to the connected users.

Economic benefits are derived from the purchase of natural gas fuel for the entire district heating plant, including the boilers and microturbine. IBT remotely controls the microturbine and schedules the maintenance activities. Energetica's staff manages the cogeneration system and the entire district heating plant. Capstone's technology with near-zero emissions is considered the most suitable among the market choices to be applied in a natural environment where respect for nature and air quality are fundamental.

The Results

The Capstone installation of the natural-gas fueled C1000S microturbine in a dual mode configuration is the first application of its kind in Europe. The system is performing as expected to the satisfaction of the end users, says Babuin. The installation has resulted in a 50 percent reduction in utility costs. ■

Capstone C1000S Microturbine



A C1000S Microturbine provides up to 1 MW of electrical power and contains five microturbine engines.