Rental Power

> Case History
Echo Mountain, Colorado, USA

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Cummins Power Generation

Where:
A remote mountain valley in the Colorado Rocky Mountains

What:
Two Rental Power units are supplying a total of approximately 1000 kW of power to a remote snowboarding and skiing park beyond the reach of utility power

Purpose:
To provide power for snowmaking and all other electrical needs at this new recreation facility

Primary choice factors:
Cummins Power Generation was eager to help this new startup business and provide reliable Rental Power units that could operate at high altitude and low ambient temperatures

Rental Power from Cummins Power Generation gives skiers and snowboarders a lift, tunes and plenty of snow

IDAHO SPRINGS, COLORADO, USA — Echo Mountain, one of the newest snowboarding and skiing parks in the Colorado Rocky Mountains, benefits from being just 30 miles from Denver. The park has been attracting increasing numbers of avid snowboarders and skiers from before Thanksgiving to the end of April since the park opened late in the 2005 ski season.

Perched at an elevation of 10,050 feet, the park boasts great snowboarding conditions and wonderful scenery — but no utility power. In order to operate the triple-chair lift, lodge, lighting, hillside sound system and snowmaking equipment, Echo Mountain relies on electricity generated by two Rental Power units from Cummins Power Generation Inc.

Even before the park opened, the owners were already negotiating with the local utility to provide electric service. The electric company's nearest power source was six miles away through forests and over mountain peaks. Not only would the new power line to the park take several years to build, the price tag for the line was $3.8 million. Since then, the utility has been investigating

A 750 kW Rental Power unit is used exclusively to supply power for the snowmaking equipment.

A 230 kW Rental Power unit supplies all the power for the lodge, chairlift and lighting for nighttime snowboarding.

a longer but easier route for the line, but it still has a cost of about $2.5 million. In the meantime, the park is operating successfully on self-generated power from two diesel Rental Power units.

"Even with the derating due to altitude, we have plenty of power available for all our needs."

"The unit that runs the ski lodge, the lift and other small loads is a 230 kW Tier 3, low-emissions diesel generator that remains on the slope year-round," says Dave Moir, rental manager for Cummins Rocky Mountain in Denver. "The second unit is a 750 kW generator that is used exclusively to run the snowmaking equipment. We install the larger unit in the fall and take it out after the end of the ski season in the spring." Each power system includes an engine, generator and control.

Extreme operating conditions

The Rental Power units have to operate under extreme conditions due to both the cold temperatures and high altitude. With nighttime temperatures dipping as low as 40 degrees below zero, a special blend of 70 percent #1 and 30 percent #2 ultra-low-sulfur diesel fuel is necessary to keep the fuel from gelling. According to Moir, the high altitude also requires the Rental Power units to be derated by 20 to 25 percent from their nameplate power ratings.

"Even with the derating due to altitude, we have plenty of power available for all our needs," says Grady Ham, director of mountain operations at Echo Mountain. "The small unit provides our daily power needs, and the larger unit is used exclusively for snowmaking. Snowmaking requires a lot of power because there is a main air-compressor/water-pump motor that draws 160 amperes. Each of the five snow guns also has a pump and a compressor that draw 50 amperes. The starting spike for the system is well over 700 amperes with a steady-state draw of 400 amperes of three-phase current."

Ham says the snowmaking system operates about 1,200 hours per season and the 750 kW Rental Power unit consumes about 18 to 20 gallons of fuel per hour. The 230 kW Rental Power unit operates continuously and uses about seven gallons of fuel per hour during the day and less than three gallons per hour at night. A 2,000-gallon storage tank supplies both Rental Power units with fuel and must be refilled several times per season. Echo Mountain staff members do all the routine maintenance on the Rental Power units such as daily inspections and oil and filter changes.

Completion of the utility power line is still several years away, says Ham. Until then, Echo Mountain will continue to use the Rental Power units to keep the snowboarders coming back for more.

For more information about Rental Power or other energy solutions, contact your local Cummins Power Generation distributor or visit www.cumminspower.com/rental.

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