



CASE STUDY: GRAND SIERRA RESORT

Grand Sierra Resort Scores Big With New Air Compressor

With approximately 2,000 guest rooms, the Grand Sierra Resort is one of the largest hotels/casinos in northern Nevada. The facility offers access to top restaurants, entertainment, shops, a bowling alley, and convention and banquet facilities, as well as 115,000 square feet of 24-hour casino action.

As part of the HVAC control system that affects the laundry facilities, showroom and kitchen, the compressor operates 24 hours a day. The system was a prime candidate for energy efficiency improvement and eligible for an incentive from NV Energy. When the director and assistant director of property operations for the Grand Sierra Resort decided to install a new variable frequency drive (VFD) air compressor at the facility, they were convinced that they would see both energy and demand savings.

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Project Summary

The new equipment matches compressor capacity to air demand and follows the fluctuating demand by varying the speed of its drive motor. As air demand goes down, the VFD air compressor lowers the delivered flow and, consequently, the power consumption (or kW and kWh consumption). This change is important because the amount of compressed air needed varies with the number of guests at the resort at any given time. The compressor no longer needs to operate at full capacity unless occupancy is at its peak.

The \$7,000 incentive from NV Energy lowered the simple payback period by approximately six months. With the proven success of this energy conservation project, the resort managers plan to pursue additional energy saving opportunities at the facility.



Energy-saving Equipment

The estimated peak demand and energy savings from replacing the two 30-horsepower air compressors with one 60-horsepower VFD air compressor were 12.2 kW and 106,872 kWh, respectively. The measured peak demand and energy savings were more than 50% greater at 19 kW and 169,000 kWh annually.



Project Results

Building Type: Hotel/casino

Project Type: Custom

Measures: Retrofit VFD air compressor

Incentive: \$7,000

Projected Annual kWh Savings: 169,000