



CASE STUDY: SILVERTON CASINO AQUARIUM

Popular Casino Aquarium Wins With Energy Savings Improvement

Among the many features offered at Silverton Casino in Las Vegas, local and out-of-town tourists are particularly drawn to the 117,000-gallon cylindrical saltwater aquarium. What visitors don't see when they visit the popular attraction is the immense behind-the-scenes mechanical system. This system runs 24/7 to regulate the aquarium's water flow, salinity, temperature and filtration. Staff saw an opportunity to reduce energy costs associated with maintaining the popular attraction and turned to NV Energy for help.

Within this mechanical system is a pump-driven cleaning system that runs off a 15-horsepower motor. The motor has the capacity to pump 2,400 gallons per minute (GPM), a flow much greater than necessary. To adjust the flow rate, the aquarium added a mechanical valve to lower the output to roughly 600 GPM.



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CALL | 800.342.6335
EMAIL | commercial@nvenergy.com
WEB | www.nvenergy.com/commercial

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Project Summary

Though the motor achieved a lower flow rate, it still operated at full capacity and used more energy than needed. The aquarium staff knew that a variable frequency drive (VFD) on the pump's motor would regulate how much energy the motor used to rotate at the needed speed. Lower energy output would reduce maintenance of the motor, increase the life of the mechanism and eliminate the need for the installed mechanical valve to regulate the flow rate.

With the VFD installed, the motor now only operates at the speed required to produce and maintain the 600 GPM flow needed for the aquarium.



Energy-saving Equipment

As a result of the VFD retrofit, Silverton Casino can expect energy savings of more than 48,000 kWh. The energy-saving VFD generated a 57% reduction in the motor's operation, resulting in 26% energy savings overall.



Project Results

Building Type: Hotel/casino

Project Type: Custom

Measures: Motors/VFD

Incentive: \$2,643

Projected Annual kWh Savings: 48,786