Case Study

Minnesota

Afton Alps: a more efficient way to make snow

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>
> Ray Weller
> Regional Sustainability and Compliance Manager

Ski country

For 52 years, Afton Alps has served Twin Cities' families as one of the Midwest's premier winter destinations. In the fall of 2013, the resort spent $10 million renovating the base area facilities, a powerful state-of-the-art snowmaking system and a cutting edge terrain park.

It takes a lot of snow guns to cover 300 skiable acres, 50 trails, and four terrain parks. In simplest terms, a snow gun uses compressed air to push the air through the guns before it mixes with water, hits the cold air and creates snow. Ray Weller, Regional Sustainability and Compliance Manager, knew the old guns were inefficient and needed replacing. He worked with Xcel Energy to determine the best solution, the most efficient guns and how to get a rebate for all of the energy they would save.

"These new snow guns use a lot less compressed air," explains Weller. "We spent almost two years vetting this entire project but it was worth it because we're saving a lot of energy and money – and received a nice rebate from Xcel Energy to help make it happen."

"A lot of people wouldn't think we can offer a rebate for something as specific as snow guns, but that's where programs like Process Efficiency and Custom Efficiency come in," explains Xcel Energy account manager Jeff Byron. "They asked us to help them figure out the savings and it took awhile, but we did it, and now it really stands out as a great project."

Better guns, less energy

They replaced 72 snow guns with high-efficiency models, in a combination of fan guns and stick guns. As an example of their increased efficiency, Weller points out that the old models were using 500-700 cubic feet per minute (CFM) and the new, low-e guns use as little as 20 CFM.

They retired 29 snow guns and replaced them with 30 new SMI Super Polecat snow guns. Weller says it all boils down to efficiency and offsetting their compressed air consumption.

Project highlights	
Project	Replace old snow guns with 72 new, energy-efficient snow guns and upgrade compressed air system
Estimated project cost	$883,899
Rebate and bonus amounts	$104,321
Demand reduction	260.8 KW
Payback term	7 years

"We went from nine compressors down to four which equated to huge energy savings for us," says Weller.

A final piece of the project involved increasing the size of the pond to have more water in storage. Weller explains that as it gets colder, they supply more water to the snow making system. They can fill the pond with smaller pumps during off peak times and have that water reserved for peak snow-making times.

"We were able to buy efficient snow guns, increase the size of the pond, go from pumping 1,800 gallons per minute to 3,300 gallons per minute, and we're using less energy," he says.

"It took a lot of work to figure out every bit of the savings, including maintenance, so this project was really rewarding because of all of the effort," adds Byron.

Piling up the savings

They won't be resting now that this project is complete. They're planning an LED upgrade on the entire property as well as possibly adding controls on the snow melt systems and controlling the heating systems in the lift shacks remotely.

These efforts fit well into their existing program called "The Next Ten," that challenged them to reduce their energy usage by 10 percent. They started in 2008 and met the goal in just two years. The new goal, established in 2010, is to reduce consumption by 20 percent by 2020, throughout all Vail properties. They're already 17 percent of the way there.

"This has turned out to be a great partnership with Xcel Energy," says Weller. And it will continue to produce more savings as the years pass.

Not sure where to start? Tell us about your project and an energy efficiency specialist will be in touch to see if it qualifies for a rebate. You may also visit **xcelenergy.com/ProcessEfficiency** for more details or call **855.839.8862**.