

## Impressive 1.5-Megawatt Wind Turbine at Jiminy Peak Resort Passes One-Year Mark - By Glenn Hasek

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After the price of electricity jumped 50 percent during the 2005-2006 ski season at Jiminy Peak Mountain Resort, management knew it had to do something significant.

It could not just keep passing along rising costs to its customers, it would lose market share. According to Jim Van Dyke, vice president of sustainability at the Hancock, Mass.-based property, the resort had already installed compact fluorescent bulbs and taken other simple steps to reduce costs. 'We had exhausted the low-hanging fruit,' he says. The resort was already using more than 2 million kilowatt-hours less of power annually thanks to its conservation efforts. What more could it do?

'I ran into a former employee in the wind industry,' Van Dyke says. 'He thought a wind turbine might be a good option.'

That suggestion got the 'blades spinning' and today, about two and one-half years after the idea was hatched, a 1.5-megawatt wind turbine sits on the west face of the mountain above the 101-suite resort. The General Electric (GE) turbine, which Van Dyke says ended up costing the resort about \$4.2 million, was subsidized in part by a \$585,000 grant from the Massachusetts Technology Collaborative. To help defray the costs, the resort is selling about \$161,000 of electricity per year back to the local power company. Jiminy Peak is also receiving an annual \$46,000 tax credit. Van Dyke says the resort's owners will recover the investment in about eight to nine years based on today's electricity rates. However, the ROI should be less based on the expectation that electricity rates will continue to rise.

### **Mechanical Glitch Last September**

The wind turbine, named Zephyr, began producing power for the resort on July 31, 2007. It was projected to produce 4.6 million kilowatt-hours of electricity in its first year. The actual production was 3.97 million kilowatt-hours. The turbine did not operate for 15 days in September 2007 when a ball bearing needed to be replaced. The turbine provides one-third of the resort's power needs most of the year. During the winter months, when winds are stronger and more consistent, that percentage rises to as high as 50 percent. Jiminy Peak used just 2.3 million kilowatt-hours of the electricity the turbine produced in the first year. That represented 46 percent of total production. It sold the remaining 54 percent back to the power company.

The size of Zephyr is impressive. It stands at 253 feet tall and has three 123-foot blades. Including the blades, its height reaches 386 feet-higher than the Statue of Liberty. The system weighs 236 tons. The Nacelle, which holds the rotor assembly, weighs 60 tons and is the size of a school bus.

Van Dyke says finding the right turbine manufacturer was a challenge. Requests for proposal were sent to five manufacturers. Only two responded and both offered unacceptable solutions. Through networking, Jack Welch, former CEO of GE, was contacted. He helped to get some contacts at GE involved and it was not long before Jiminy Peak had signed a deal for the largest piece of equipment in its history.

Getting the turbine up the mountain was a challenge. A two-mile-long road had to be improved and a crane had to be assembled at the site to erect the turbine. Once all of the parts and pieces were at the site, it took just three days to assemble it.

'We all acknowledged that failure was not an option,' Van Dyke says. 'GE was phenomenal from start to finish. Every six months, they come out and check the turbine. They also monitor it remotely 24 hours a day.'

### **Important Grounding Lesson Learned**

One of the most important lessons resort staff learned during the turbine purchase and erection process was to have the grounding plan done well in advance. They waited a little too long and it was a challenge to pull the experts and equipment together to ensure that the turbine was properly grounded. Eventually, it took the digging of two wells 500 feet deep, lots of wire and 39,000 pounds of a special carbon material to ground Zephyr.

One of the surprises for Van Dyke was the sound of the turbine. He expected it not to be an issue but after receiving a call from a neighbor he learned otherwise. He visited the neighbor and listened for himself. He realized there is a very slight noise similar to a jet airplane off in the distance. It can be heard up to three-quarters of a mile away.

For the most part, the turbine has been very successful for Jiminy Peak.

'The interest in the turbine has been phenomenal,' Van Dyke says. 'We have gone out and told the Zephyr story to a lot of people.'

Because most turbines last 20 years or longer, Jiminy Peak Resort will benefit significantly financially once its bills for Zephyr are paid. That is good news for the resort's owners, the thousands of skiers who will visit the property and great news for the environment as well.

This article first appeared on the Green Lodging News website. To sign up to receive the weekly Green Lodging News newsletter, go to [www.greenlodgingnews.com](http://www.greenlodgingnews.com). Glenn Hasek can be reached at [editor@greenlodgingnews.com](mailto:editor@greenlodgingnews.com).

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