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Independent, unbiased advice is invaluable. Linetec, one of the nation's largest independent architectural finishers, recently relied on Focus on Energy to analyze the benefits and costs of an incinerator project at its Wausau facility.

This independent review helped Linetec make a smart business decision that will substantially reduce annual energy costs as well as free capacity on a key variable frequency drive. Newly available capacity will come in handy if the company decides to expand production on one of its high-tech finishing lines.

Linetec creates paint and anodizes finishes for aluminum windows and wall systems, automotive and electronic components and manufactured consumer goods. The company utilizes high-tech finishing lines that are flexible, fast and dependable; these lines provide consistent and top quality finishes on time. Linetec currently operates 24 hours per day, five days a week at this facility.

Linetec, like other finishers, must incinerate the volatile organic compounds (VOCs) that are a by-product of the painting and coating process. The company uses a regenerative thermal oxidizer to achieve this goal. However, over a period of time, the three beds in Linetec's existing oxidizer unit, which are filled with ceramic supports, had become partially plugged from painting operations. Facility operators removed some of the contaminated ceramic material to alleviate the problem. Unfortunately, this action reduced the unit's energy efficiency.

In 2001, Linetec was working with Megtec, a Focus on Energy Program Ally, to solve this problem and modify its oxidizer. Linetec was looking for input, and asked Focus on Energy for help. Tom Tucker, P.E., an Energy Advisor for Focus on Energy's General Industry Program, suggested that Linetec apply for a Feasibility Study Grant to encourage completion of a feasibility study. The company applied for and obtained a grant; the grant allowed Linetec to "do its homework" and make sure the company made a smart operational decision.

"Sometimes, manufacturers want us to find projects for them to consider," said Tom Tucker. "However, Bill

Giebel, the engineering manager at Linetec, already had a project in mind. He suspected there was opportunity to improve the oxidizer."

Mr. Giebel appreciated input on the project from a reliable, independent source. "Our primary goal is to help companies use energy more efficiently and operate their facilities in a cost effective, competitive manner," said Tucker.

After Focus on Energy's independent review of Megtec's study, all parties agreed that the best solution was to make some changes to the natural gas fueled oxidizer. First, it was recommended that Linetec replace the random ceramic bed "packing" with structured packing to boost the heat transfer efficiency and reduce the pressure differential across the oxidizer. By reducing the pressure differential, the exhaust fan's energy requirements drop. This action is projected to save 77 kW and 480,480 kWh of electricity each year.

Second, because the oxidizer's thermal efficiency will be higher, it will take less natural gas to incinerate the VOCs. To maximize these savings even further, it was recommended that Linetec install a special program in the oxidizer that would allow it to use VOCs emitted during process operations as a fuel source. With this program, the oxidizer uses natural gas during the start-up and idle phases as it normally does, but when the VOC level reaches a certain point, the VOCs are used to fuel the oxidizer. This self-sustaining fuel source can be "tapped into" when a finishing line emits a certain level of VOCs. This action, in conjunction with the replacement of the ceramic bed, is projected to reduce natural gas use by 106,080 therms each year.

An added benefit of implementing this project is increased capacity. Because the exhaust fan requires less horsepower to operate and there is a lower pressure differential across the oxidizer, this action allows the possibility of process expansion.

Linetec recently implemented these recommended actions and will be monitoring them. The company is working with Focus on Energy to identify additional energy saving opportunities.

Focus on Energy is a public-private partnership offering energy information and services to energy utility customers throughout Wisconsin. The goals of this program are to encourage energy efficiency and use of renewable energy, enhance the environment, and ensure the future supply of energy for Wisconsin. **800.762.7077. focusonenergy.com**

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