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Toledo company plugs in tighter on energy-saving

Rudolph/Libbe beefs up division installing microturbine generators

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J.T. THIELMAN pops open his laptop computer and calls up a program that lets him check on how much of the electricity currently being used at Toledo's SeaGate Convention Centre is from the power grid and how much is being generated in-house.

The satisfying answer, on many days, is 75 percent in-house. The same system, fueled by natural gas, also meets much of the building's heating and air-conditioning needs.

"It's been a good success," Mr. Thielman, the convention center's director of operations, said of the system that relies on four desk-size microturbines.

Like the managers of SeaGate Centre, where the system was installed four years ago, owners and developers of factories, office buildings, and other commercial structures are increasingly looking for ways to cut energy bills while helping clean up the environment.

Seeking to capitalize on that demand, a large commercial contracting firm in metro Toledo has beefed up a unit that helps owners of large structures develop strategies for boosting energy efficiency and cutting costs.

Rudolph/Libbe Inc., of Walbridge, set up the side business two years ago to help customers assess their power use and employ energy alternatives.

In recent weeks, the firm, through its GEM Inc. subsidiary, stepped up that effort by buying a firm near Akron that specializes in designing and installing power and heating systems that use microturbines — the same turbines at the SeaGate Centre and several other Toledo buildings. The acquired firm is BHP Energy of Hudson, Ohio.

"More and more companies are focusing on energy conservation and … trying to reduce their emissions," said Ron Donnal, GEM vice president. "We think this will be a good fit for a lot of our existing customers."

J.T. Thielman, SeaGate Convention Centre director of operations, calls the building's generation system 'a good success.'
(THE BLADE/JETTA FRASER)

The combined firm already has landed its first big project.

Syracuse University in New York, along with IBM, hired GEM to develop and install a computer center that will use 50 percent less energy than typical facilities. The system will have 12 low-emission microturbines made by Capstone Turbine Corp., of Chatsworth, Calif., about 25 miles northwest of Los Angeles.

With the ability to produce its own heat and electricity and to draw power from the electrical grid, it will be among the "greenest" computer centers in the nation, developers promise.

At the new Lucas County Multi-Purpose arena, GEM installed four natural-gas-fueled microturbines that will supply a portion of the heat and air conditioning and 25 to 50 percent of electricity.

The 8,000-square-foot home of the Toledo Walleye hockey team hopes to meet criteria for the U.S. Green Building Council's Leadership in Energy and Environmental Design program, known as LEED.

Paul Bernard, physical plant manager, estimates the turbines save the museum about $500,000 in utilities costs annually.
(THE BLADE/AMY E. VOIGT)

The microturbines, which produce few emissions, also can use other energy sources like biofuel or methane from landfills. They operate on a principle similar to jet engines.

Commercial building owners have resisted using alternative-energy systems because of cost and difficulty in retrofitting structures, although interest is growing, experts said.

New products and technological breakthroughs are increasingly popular topics at industry seminars, said Ron Burton, of the Building Owners and Managers Association International.

"It's becoming much more mainstream in the construction industry," he added. "It's not as exotic as it used to be."

When Paul Bernard arrived at the Toledo Museum of Art in the early 1990s to manage mechanical systems, executives were worried about the growing share of the institution's budget being eaten up by energy costs.

In late 2004, the museum installed four natural-gas-fueled microturbines that supply about a third of electricity, heat, and hot water.

Other improvements include solar panels and energy-efficient lighting. The institution also is considering adding windmills.

Even with those improvements, the museum's monthly electric bill averages $12,000 to $14,000. But Mr. Bernard estimates that, without the microturbines, annual electric costs would be $500,000 higher.

Power demand is about a third of the 6.3 million kilowatt hours the museum bought in the early 1990s, Mr. Bernard said.

Despite spikes in natural gas prices in recent years, the system has continued to be cost-effective because it produces both heat and electricity.

Mr. Bernard estimates that the system paid for itself in four years. The turbines cost about $150,000 each.

At the SeaGate Centre, the turbines satisfy mostly heating needs, except at major events. They supply 50 percent to 75 percent of electricity needs.

Modifications to the system in mid-2008 now enable it to provide air conditioning.

Before then, it wasn't cost-effective to run the system in summer. "It's combined heat and power that make the numbers work," Mr. Thielman said.

The center is close to reaching its target of $125,000 in annual savings from the system, he added. Initial purchase costs for the four turbines were about $600,000, although the arena received state assistance.

"We've had lots of different businesses come through for tours from around the state and even people from outside the country," Mr. Thielman said. "Part of our agreement with the state of Ohio is that we would open our books and doors as a demonstration site for alternative energy."

Dave Blair, a founder of BHP Energy, has been a distributor for Capstone Energy since starting his firm in 2002. He'll continue to head BHP for Rudolph/Libbe.

Capstone is one of many manufacturers of microturbine systems, and it has been making the products since 1998. Although the firm has struggled to be profitable, its turbines are gradually gaining acceptance. Last year, it shipped 434 units for $22 million, according to securities filings.

"We were out there quietly working on these kinds of projects before they became popular," Mr. Blair said.

Even so, turbines are more likely to be installed in existing buildings than used in new construction. "We're in the early stages," Mr. Blair conceded. "It's an educational process."