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Cell Searching

EMTEC becoming a major player in advancing fuel cell technology

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The fuel cell industry needs Henry Ford.

The souped-up, clean-burning power source is on the verge of going big time -- being used in everything from laptops to Lincolns. But for that to happen, someone needs to find a cheaper way of manufacturing fuel cells, much like Ford did for cars.

"We're probably just a year or so pre-Henry Ford," said Frank Svet, president and chief executive officer of [EMTEC \(Edison Materials Technology Center\)](#) in Kettering. "I think the technology's been proven. What has not been developed yet is a way to mass-produce it cost effectively."

In the meantime, researchers continue searching for ways to commercialize and advance fuel cells. And thanks in part to a \$3 million U.S. Department of Energy contract, EMTEC has become a key player in this effort. Already, EMTEC -- which works with universities, companies and researchers -- has expanded its operations and hired two new fuel cell experts.

The expanded resources enable EMTEC to work with other companies to advance fuel cell technologies and possibly find the silver bullet that would solve the challenges of mass production, said Michael Martin, the new director of fuel cell technology at EMTEC.

"That would be awesome," said Martin, with a big smile across his face.

Like a battery, a fuel cell is an energy conversion device. But unlike a battery, it turns hydrogen and oxygen into water, producing electricity and heat in the process. It can be recharged while its power is being used, but instead of recharging with electricity, a fuel cell recharges with hydrogen and oxygen.

In the past decade, fuel cells have become commercially viable with new technologies and new ways to apply them to various industries. A few markets -- such as military and health care -- appear most ripe for fuel cells, Svet said.

Because fuel cells are so quiet when they run, a soldier can use them like batteries that last two and half times longer than diesel generators. Also, hospitals might use them to replace noisy diesel generators that back up power supplies.

Another potential area is the industrial market. Forklifts often use batteries that have to be recharged every day or so, but fuel cells eliminate that hassle.

EMTEC actions

With all of the advantages of fuel cell technology, EMTEC hopes to play its part to advance the field with the new contract.

With the DOE money, EMTEC is accepting applications from companies from coast to coast -- including those in Ohio -- that show promise with fuel cell technologies that could be commercialized with some funding. By the end of July, the contract will be closed and EMTEC will decide how the funds will be handed out.

The DOE contract demonstrates EMTEC's place in the fuel cell field, said Ken Alfred, executive director of the Ohio Fuel Cell Coalition, a state-backed group that advocates fuel cell technology
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and commercialization.

"It does establish EMTEC ... as a significant resource and a significant participation in the fuel cell business and the fuel cell industry," Alfred said.

Joe Tuss, community and economic development director for Montgomery County, said EMTEC's strengths in fuel cell technology are important for the whole economy. Fuel cell companies are bound to cluster around centers of research like EMTEC, he added.

"Fuel cell technology is one of those technologies that's got significant potential for new business growth and development," he said. "It's one of those technologies of the future."

The DOE award is new for the fuel cell industry, Martin said. In the past, the DOE, which is working on fuel cell initiatives, intended to give grants to universities where researchers would do more basic studies on fuel cells. But this contract is for those companies that may have a great idea, but need some more money to get a product to market.

"There are some that need just a little bit of a nudge," Martin said.

One company that will go after some of these awards is Faraday Technologies in Clayton. The company specializes in a key area of fuel cell manufacturing: platinum, which is a main part of a fuel cell's power production, said Jennings Taylor, president and chief technology officer of Faraday.

Taylor said Faraday has discovered ways to inexpensively standardize platinum manufacturing for all types of fuel cells, which could save money for companies.

To review technologies such as Faraday's for the contract, EMTEC has brought on two new leaders, including Martin, who formerly worked at University of California at Irvine. The other is Jai-woh Kim, who will assist in technical review for the contract. He formerly worked at Hartford, Conn.-based United Technologies Corp., which specializes in fuel cell technologies.

Svet said the addition of these people and other activities involving research have pushed him to expand EMTEC's offices at Miami Valley Research Park by about one-third to between 8,000 square feet and 9,000 square feet.

David Swenson, vice president of EMTEC, said the center sees big things ahead for the new contract and the fuel cell industry.

"There's a gap between the basic and applied research," Swenson said. "That gap is what we're trying to fill."

A new vehicle for fuel cells

One of the newest drivers for fuel cell technology are hybrid vehicles. Although they currently don't use fuel cells, hybrid vehicles still could help the evolution of fuel cells. After years of being seen as a quirky car driven by hippies and environmentalists, the car has found widespread acceptance thanks to generous tax credits and skyrocketing fuel prices.

Svet said the hybrid's popularity could spawn a move to use fuel cells in cars, as consumers and companies start thinking about alternative fuels.

"They are a bridge to fuel cell technology" Svet said.

He added the mass production of hybrids has advanced technologies that could help put fuel cells in vehicles.

Also, fuel cells are getting a boost from the Bush administration.

In early 2003, President Bush announced in the State of the Union address that he would boost funding for hydrogen fuel cells to \$1.2 billion over the next five years. The funding would be used to develop technology for commercially viable hydrogen-powered fuel cells to power cars, trucks,

homes and businesses with no pollution or greenhouse gases.

In fact, \$3 million contract that EMTEC recently began to implement comes from that pot of money.

"EMTEC saw itself ... as capable of capitalizing on the new thinking coming from the administration," Svet said.

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