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Title: Professor at MTSU looks to sun for power
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Staff Writer

As the sun beat down in the blistering midmorning yesterday, Middle Tennessee State University professor **Cliff Ricketts** pointed to his wall of 10-kilowatt solar panels and hoped for a day when "we could do most of our daily commutes just on the sun."

The university is selling solar power back to the Murfreesboro Electric Department, which gives him credit for electricity, credit he and his students then use to produce hydrogen to power automobiles.

Ricketts, who has been researching alternative-fuel vehicles for 25 years, is almost as creative finding funding for his projects as he is developing new ways to power engines.

MTSU students have paid about \$130,000 from their technology access fees for the solar project. Tractor Supply pays \$9,500 per year as corporate sponsor -- an amount matched by the university, and, now, **Ricketts'** research has made it into the House energy bill.

U.S. Rep. Bart Gordon, D-Murfreesboro, wrote some language into the bill that passed earlier this year that **Ricketts** says describes his work. It directs the secretary of energy to figure out the feasibility of hydrogen propulsion for vehicles and identify universities with expertise in the area that "use hydrogen produced from water using only solar energy."

It includes no funding.

The final energy bill is still up in the air pending an agreement that must be worked out between the House and Senate versions.

A Gordon spokeswoman said Gordon, who has helped Middle Tennessee State University in the past, supports research into environment-friendly fuels. She pointed out the bill doesn't specifically direct funds to **Ricketts**.

Gordon also recently helped Tennessee Tech get a grant of \$200,000 to find better materials for solid oxide fuel cells, which could convert chemical energy into electrical energy without the need for combustion.

Legislators are under pressure to come up with a new energy law as oil prices reached a record \$60 per barrel earlier this week.

High gas prices have also helped focus attention on the efforts of people such as agri-science professor **Ricketts**.

Ricketts drew attention during the oil crisis of the 1970s. He said Al Gore, later to become vice president, helped him get \$10,000 to study ethanol-powered vehicles. He also has worked over the years on fuel based on soybean oil and on methane derived from cow manure.

Now, **Ricketts** is working on hydrogen.

He had hoped to directly hook up his hydrogen-producing machine to his solar panels but learned that wasn't as efficient as tying in the electric power lines maintained by the Murfreesboro Electric Department.

TVA ultimately funds the buy-back program, which pays MTSU 20 cents per kilowatt-hour of solar energy produced.

Ricketts uses those credits to power an electrolysis machine that separates hydrogen from water. He then uses the hydrogen to start the internal combustion engine on his MTSU vehicles, which include a hybrid

Nissan pickup truck.

Stephen Smith, the executive director of the Southern Alliance for Clean Energy in Knoxville, said **Ricketts'** research is different because it focuses on hydrogen produced from renewable sources, such as solar power.

He says most of the research funded under the Bush administration has been directed at hydrogen gleaned from coal or nuclear sources, sources that some say aren't as good because coal supplies eventually will run out and nuclear energy produces radioactive waste.

"I think it's significant because he's using truly renewable resources to get clean energy," Smith said.

Ricketts' research also is different because it uses an internal combustion engine instead of fuel cells. Fuel cells are more efficient, but the technology still is years away from being affordable to the average person, Smith said.

Ricketts admits that his technology isn't commercially viable.

The solar panels at MTSU cost \$75,000 and make enough energy to power about one household. His hybrid Nissan truck can run for 55 miles fueled by hydrogen.

Ricketts hopes to get enough money together for a new system to drive a car from one end of the state to the other, more than 500 miles from Mountain City to Memphis.

In the end, he wants to add to research in the field and provide a learning opportunity for students. He doesn't know that he'll necessarily invent an affordable hydrogen-solar car, but he has made progress.

"My goal and lifetime mission is to drive vehicles on nothing but sun and water," he said. "We're now doing that." o

PHOTO:

CREDIT: RICKY ROGERS / STAFF

CAPTION: Middle Tennessee State University professor **Cliff Ricketts**, second from right in tie, watches as student Frank Byers starts the internal combustion engine that is fueled by hydrogen.

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