

# Turning up the heat on recycled fuel

**Analysts say a Wisconsin restaurant owner's idea to heat water with used cooking oil may start an industry trend**

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PLEASANT PRAIRIE, Wis. -- Those clever guys who run their cars on fuel made from old French-fry oil are out of luck if they try to gas up at Ed Rich's restaurant. He's come up with his own way of turning grease into gold.

Last month, in an experiment some experts believe could become an industry standard, Rich began heating the hot water at his Culver's franchise with a boiler that burns vegetable oil no longer good for giving a golden crunchiness to fries, onion rings and chicken tenders.

"My mother's from Germany, so I've seen how they recycle in Europe, and I think we need to do more of that here," said Rich, who has been serving up ButterBurgers and frozen custard for five years in this town just across the Illinois line. "We have to find a way to become less dependent on foreign oil, and if we all do our part, it can make a difference."

Several alternative-energy experts said that although they had never heard of a similar system, Rich's idea catches the wave of interest in alternative fuels sparked by the sharp rise in energy costs in the last couple of years.

"This is a really nice idea, and in terms of what is called industrial ecology, it's taking what would otherwise be a low-quality waste product and converting it to productive use," said Harvey Sachs, director of the buildings program for the American Council for an Energy-Efficient Economy, a Washington-based think tank. "For him to do this is cool."

Rich got the idea for the system after reading about people who run their cars on biodiesel made from fryer oil. He thought about trying that but wasn't sure if he would have the range to get from his home near Milwaukee to his dad's place in La Crosse, on the other end of the state.

"I might have a problem unless I run into another Culver's that has some oil to spare," Rich said.

His thoughts then turned to using the oil to heat water. He did some research, talked to some friends and eventually hooked up with INOV8, a La Crosse company that's been making boilers that burn waste motor oil for more than 15 years.

"We're at a point where we can't afford to throw away energy," said Rebecca Faas, president of INOV8, which designed and installed Rich's system. "There are something like 925,000 restaurants in the U.S., and if we could heat all their water with renewables, just think what that could save."

Most restaurants dump used oil in drums that are carried away by hauling services, which sell it for use in cosmetics or to mix with animal feed. Some haulers charge \$50 a month, but others, like the one Rich uses, do it in exchange for the used oil.

That is beginning to change, said Barbara Behling, spokeswoman for Culver's corporate office in Prairie du Sac, Wis.

"With the recent energy costs skyrocketing, we've had people offer to pay for used oil," she said. If it becomes valuable, she said, it could alter the equation for how much money the oil burner saves.

Culver's, which runs several corporate cars and trucks on biodiesel made from cooking oil, is waiting to find out how well the Pleasant Prairie system works before deciding whether to recommend it to all franchisees, Behling

said. There is no timetable, she said, but "if in six months it's better than sliced bread, we'll give the green light much faster."

Like most people, Rich has no clue how much hot water he actually uses, but based on early results on natural-gas use, he figures he can save thousands of dollars a year while eliminating the hassle of storing barrels of old grease behind the restaurant. He has already gotten calls from restaurant owners around the area, he said.

"It is a novel idea using biofuels to produce heat to use in your restaurant, but I think if this catches on, it can gain some momentum and become standard practice in the industry," said Matthew Matenaer of Focus on Energy, a state-funded Wisconsin group that promotes energy conservation.

Focus on Energy is helping Rich study the system to find out precisely how much water he uses and how much gas he saves. When the data are in, the group can decide to whom to recommend the system and how much of a credit the state should offer based on a formula that awards a one-time rebate of 30 cents per therm saved in a year.

It's too early to say how many therms the grease-burner might save, Matenaer said.

The unit is bigger than a traditional water heater and doesn't bear much resemblance: three blue boxes stacked to about eye level, with an oil tank on the bottom, a hot water tank in the middle and a heating apparatus up top.

Rich's is stashed in a utility closet--a large one. The old heater is still there as a backup if he runs out of grease or has a problem with the prototype. Health rules require restaurants to close if they have no hot water.

INOv8's next model will be able to run on natural gas as well and will switch over automatically if there's a problem with the oil supply, said INOV8 salesman Matt Fisher, who used to work in restaurants and collaborated with Rich on the project.

The system costs \$9,000 to \$11,000, depending on capacity, plus about \$2,000 for installation, Fisher said. Based on shop models, he expects them to last more than 20 years.

It releases no problem emissions, INOV8's Faas said, and the smell of French fries is surprisingly absent as the burner does its thing.

"This is the epitome of green energy," Faas said. "You can't get any greener."

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