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Furman joins with nearby astronomical institute to form telescope team

Furman University

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Furmanreports

Grease is the word

Cooking oil from dining hall to fuel campus equipment

Grease, a byproduct of French fries, onion rings and other Furman dining hall favorites, has long been considered a health hazard, which is why it has typically been thrown out at the end of each day.

But thanks to a new program sponsored by the university's Environmental Action Group (EAG), the cooking oil from the dining hall will henceforth be put to productive use: It will be converted to fuel that will help run Furman's groundskeeping equipment.

Furman now has the means to convert the grease to biodiesel fuel, thanks to new processing equipment housed in a small wooden building near the Department of Facilities Services.

According to the U.S. Department of Energy, biodiesel is "like diesel fuel, except it comes from renewable resources like vegetable oils or restaurant greases." The fuel, which can be used in conventional diesel engines, is cleaner than gasoline and petroleum diesel. It emits 70 percent less carbon dioxide, which impacts global warming, and virtually no sulfates, which contribute to acid rain.

Biology professor Travis Perry, advisor to EAG, estimates that Furman's biodiesel converter is capable of producing 2,500 gallons of the fuel each year. Production costs, he says, are approximately 60 cents per gallon.

EAG volunteers will collect the grease and provide the labor required to make the fuel, then sell it to Facilities Services at a 20 percent savings from market cost (currently about \$2 per gallon). The project fits Furman's strategic commitment to environmental citizenship, and its proceeds will support EAG activities.



Adrienne DuBois '06 and Chris Jones '07 demonstrate how the converter works in changing cooking oil to biodiesel fuel.

The fuel is expected to be used in such heavy campus machinery as tractors, lawn mowers and backhoes. *The Greenville News* reported that at Furman, a lawn mower can use as much as eight gallons of diesel fuel a day.

Lu Yoder of Albuquerque, N.M., was a consultant for the project and helped the students build the biodiesel converter. Construction, which required coordinating such parts as a water heater, jugs and two 55-gallon drums, took just one day.

Yoder told the *News*, "There are a lot of people in the United States who are making their own fuel in their garage like this."

— Kelli Dieterich '05

Furman joins with nearby astronomical institute to form telescope team



Physics professor David Moffett shows off the optical telescope.

Furman and the Pisgah Astronomical Research Institute (PARI) near Brevard, N.C., have jointly developed an optical telescope to be used by students for remote observations.

Furman provided a 14-inch Celestron telescope and a CCD (charge-coupled device) camera, a digital camera with light-sensitive elements that are used to record images of stars and galaxies. PARI provided a Paramount ME robotic mount and its observatory, located on the PARI optical ridge. Using energy from a solar-powered 12-volt battery, the observatory roof can be rolled back for viewing. The process can be initiated and controlled by students accessing the observatory via the Internet.

"A remotely operated roll-off roof utilizing solar power is a bit unusual," says Furman physics professor David Moffett, "but for student operation it has significant advantages over a dome.

"An observatory dome requires positioning that adds another variable to observations. A roll-off roof takes the dome rotation totally out of the equation. When the roof is pulled back the telescope is fully exposed to the night sky and can rapidly slew to any part of the sky without losing time to dome positioning."

PARI, a not-for-profit public foundation, is located in the Pisgah Forest. The 200-acre PARI campus was selected in 1962 by NASA as the East Coast tracking station for manned space flights.