Engineers Study Alternative Energy

A $1 MILLION SATURN diesel turbine generator has given biofuel research at UL Lafayette a boost.

It was donated to the College of Engineering by Solar Turbines in Lafayette. The company, which is owned by Caterpillar, has corporate headquarters in San Diego.

"The new equipment positions UL Lafayette's engineering program with a developmental capability not found at many colleges. It will be used in conjunction with other donated equipment to form the cornerstone for a fast-growing alternative energy research focus within the College of Engineering," said Dr. William Emblom, an assistant professor of mechanical engineering.

The new equipment will be used by several faculty members who are working with area industries to make Acadiana a leader in energy management. For example, they are studying the use of biodiesel, a renewable fuel made from vegetable oil, to power the turbine generator. Their goal is to assess economic and technical benefits derived through the use of biodiesel.

BETH GUILLET

This Saturn diesel turbine generator can power about 700 homes.

"Other related work includes the use of the solar turbine and generator system in conjunction with the Combined Heating and Power Process," Emblom said. "The CHP process is being used by companies across the nation to reduce energy costs by first generating electricity and then using the waste heat to provide cooling or heating for buildings and other applications."

The turbine generator is capable of producing enough electricity to power about 700 homes. Along with an electrical generator, it's permanently mounted inside a tractor-trailer that is fully transportable.

FISH DNA MAY YIELD VALUABLE CLUES

DOES THE DNA of the electric fish hold secrets that could someday advance the treatment of human spinal cord injuries?

Dr. James Albert, an assistant professor of biology at UL Lafayette, is intrigued by the possibility. The eel-like, electric fish may also help scientists develop biobatteries that could repair and replace themselves.

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Electrophorus electricus

South American electric fishes, found only in the Amazon Basin, hold so much promise because they have an exceptional ability to regenerate. Electro-sensing catfish frequently bite off the tails of this species; the electric fishes have responded by growing back what has been removed.

"You can cut off the back third of the body and they will regenerate everything, including the spinal cord," Albert stated in *Nature News* in February.

If scientists can figure out which genes are responsible for an organism's ability to generate electricity, the information might also be useful in the treatment of medical conditions such as Parkinson's disease, epilepsy and muscular dystrophy.

Albert and some colleagues have started genome sequencing of the electric fish to try to get the information they need. "Sequencing gives you the pieces of the puzzle. But you have to sequence it 10 times over and then do a lot of analysis of the data to put the puzzle back together," he said. A proposal to sequence the whole genome of the Electrophorus electricus is being reviewed by the Department of Energy's Joint Genome Institute.