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Six Minority Universities Win Fossil Energy Research Grants to Advance Use of Oil, Coal, Gas Richardson, Browner Announce Government "Showcase" Project

As part of the Department of Energy's continuing efforts to increase the involvement of the nation's minority institutions in energy research, Energy Secretary Bill Richardson today announced that six historically black universities and other minority institutions will share nearly $1 million in federal funding for fossil energy projects ranging from oil reservoir characterization to burner design for low-emission burners to pollution reduction from car engines.

The winning schools are:

Prairie View A&M University, Prairie View, TX, (2 projects): one for research into a new way of determining the geologic characteristics of complex oil reservoirs; the other for testing a new data analysis technique based on neural networks that could simplify modeling of the way fuel burns in a compression ignition engine, such as a diesel engine;

The University of Texas-Pan American, Edinburg, TX, for investigating ways to reduce pollution from natural gas diffusion flames;

Clark Atlanta University, Atlanta, GA, for research on novel catalysts to enhance heavy oil upgrading;

Tuskegee University, Tuskegee, AL, for improving a cleanup process that removes hydrogen sulfide and trace contaminants from coal gasifier gas;

North Carolina A&T State University, Greensboro, NC, for helping decrease the fouling that can occur in membranes used to separate impurities from gases produced in fossil energy processes;

Grambling State University, Grambling, LA, for improving the efficiency of converting certain gases into mixed fuel- or chemical-grade alcohols and hydrocarbons.

"We continue to strengthen America's future energy security not only by investing in the technologies of tomorrow but in the skills of the future scientists and engineers who will build and operate these technologies," Richardson said. "Our nation's minority institutions have proven

to be valuable partners in our energy research program, and grants like the ones we are announcing today signify our commitment to enhancing their contributions."

This is the ninth year that the Energy Department has provided grants specifically to the nation's minority universities for research projects in fossil energy research. With fossil fuels accounting for more than 85 percent of the nation's energy needs, a major focus of the Energy Department is to support research at the nation's universities on ways to make the future production and use of coal, oil and natural gas cleaner and more efficient.

Brief profiles of the winning projects follow:

Prairie View A&M University, Prairie View, TX:

Project No. 1 - Professor-student researchers will explore a new way of characterizing complex oil reservoirs by demonstrating the advantages and limitations of integrating seismic data. Prairie View A&M will partner with the Bureau of Economic Geology, a research unit of the University of Texas at Austin, and Vinos Exploration, an Austin-based oil and gas company. The project could lead to new insights in ways to produce more petroleum from the Nation's most difficult oil formations.

Proposed DOE award: $183,482. Project duration: three years. Contact: Innocent Aluka, 936-857-4510, e-mail: ialuka@pvamu.edu.

Project No. 2 - Researchers will use a newly developed data analysis technique based on neural networks to simplify the way combustion in a compression ignition direct injection engine can be mathematically modeled. If successful, the program can be used to design future automotive engines that produce lower air emissions.

Proposed DOE award: $19,990. Project duration: one year. Contact: Nelson Butuk, 936-857-4021, e-mail: n_butuk@pvame.edu.

The University of Texas-Pan American, Edinburg, TX:

Student-teacher teams will study ways to reduce pollution, including carbon dioxide (a greenhouse gas), from natural gas diffusion flames by changing the amount of air and the rate at which the air is mixed with the flames. Sets of constricted tubes of various sizes will be arranged around a gas jet to achieve a "cascading" effect, which can help optimize low-emission burner designs.

Proposed DOE award: $19,998; university share: $45,000. Project duration: one year. Contact: Ala Qubbaj, 956-381-5220, e-mail: qabbaj@panam.edu.

Clark Atlanta University, Atlanta, GA:

Students and professors will develop a series of novel catalysts possessing the right blend of ultra-large, well-defined pores and mild acid strengths to enhance heavy oil upgrading. If successful, the project could advance mild hydrocracking technology, leading to lower petroleum refining costs.

Proposed DOE award: $191,996. Project duration: three years. Contact: Conrad Ingram, 404-880-6848, e-mail: cingram@cau.edu.

Tuskegee University, Tuskegee, AL:

Research teams of students and professors will study a way to improve a cleanup process that removes hydrogen sulfide and trace impurities from gas made from coal. The researchers will conduct fundamental measurements of the kinetics of direct oxidation, which converts hydrogen sulfide (a pollutant) into elemental sulfur (a commercially valuable product). By developing ways to model direct oxidation reactions, the research teams will provide valuable fundamental data for DOE's program to develop a virtually pollution-free future energy plant (a concept called Vision 21).

Tuskegee University will partner with Research Triangle Institute and Texaco Proposed DOE award: $191,986; university share: $18,000. Project duration: three years. Contact: Kyung Kwon, 344-727-8976, e-mail: kwonk@tusk.edu.

North Carolina A&T State University, Greensboro, NC:

Student-teacher teams will develop new ways to help decrease contamination of membranes used in filtration systems of fossil energy pollution control and chemical separation processes. By studying the advantages and limitations of periodic flow reversal on membrane-based separation systems for industrial applications, the researchers will develop important data that could help improve the efficiency and environmental performance of future fossil energy-powered plants.

Proposed DOE award: $191,990. Project duration: three years. Contact: Shamsuddin Ilias, 336-334-7564, e-mail: ilias@ncat.edu.

Grambling State University, Grambling, LA:

Research teams of students and teachers will study ways to improve the efficiency of converting carbon monoxide, carbon dioxide and hydrogen (which are gases that can be made from coal and other fossil fuels) into alcohols and liquid fuels that might one day substitute for imported oil. The researchers will concentrate on synthesizing and studying extremely-fine metal particle catalysts that can be used in a process called Fischer-Tropsch. Grambling will partner with Louisiana Tech University in Ruston, LA, and Hydrocarbon Technologies Inc. in Lawrenceville, NJ.

Proposed DOE award: $191,822; university share: $40,668. Project duration: three years.
Contact: Zhenchen Zhong, 318-274-2289, e-mail: zzhong@coes.latech.edu.