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## Seven Minority Universities Selected for Energy Research Grants

### Projects to Lower Power Plant Emissions, Produce Hydrogen, and Improve Fuel Cells Among Selections

WASHINGTON, DC - The Department of Energy has awarded research grants to seven Historically Black Colleges and Universities and Other Minority Institutions (HBCU) to support research projects that address technical issues regarding the use of fossil fuels for energy production. The HBCU grant research program, providing about \$1 million annually, gives minority students valuable hands-on experience in developing technologies to promote the efficient and environmentally safe use of coal, oil, and natural gas.

"I'm pleased to note the growing interest and participation by HBCU college students in 21st century fossil energy research because the people who will resolve the critical issues of the next century are in college today," Secretary of Energy Spencer Abraham said. "The opportunities we offer them through this program will not only benefit their educational progress but will help secure our country's energy future."

In five of the projects, the government's funding share of nearly \$200,000 each will go to professor-student research teams. The other two projects are for smaller scale efforts that will be led by students. For these projects DOE will provide \$20,000 grants.

The selected universities and their projects include:

Hampton University, Hampton, Va. -- will design and test a tin oxide-based catalyst to remove large amounts of nitrogen from power plant flue gases. The emphasis will be on the catalysts' ability to resist poisoning, which can reduce the life of the catalyst. Also, the effect of temperature on catalyst performance will be evaluated. DOE award: \$200,000. Project duration: 36 months.

North Carolina A&T State University, Greensboro, N.C. -- will help design more efficient CO<sub>2</sub>-capture systems by measuring, for the first time, heat that dissolves CO<sub>2</sub> in mixed solvents. To capture and regenerate CO<sub>2</sub> more economically, university researchers believe there is a need to develop more efficient solvent systems. Conclusions and recommendations for successful mixed

solvents will be made, offering the potential of commercialization. DOE award: \$199,807. Project duration: 36 months.

Prairie View A&M University, Prairie View, Texas -- will improve the design and performance of internal combustion engines to produce fewer emissions. The Prairie View A&M team will apply neural networks in their analysis to model three-dimensional simulations of reactive flows containing hundreds of species of chemicals. DOE award: \$199,980. Project duration: 36 months.

Clark Atlanta University, Atlanta, Ga. -- will determine the feasibility of producing hydrogen from coal and/or biomass, while also sequestering carbon. The project will determine if sequestered carbon and other nutrients can be returned to the soil in a cost-effective manner. Scientific Carbon Inc. of Blakely, Ga., will conduct pilot-scale testing; all other work will be performed at the university. DOE award: \$200,000. Project duration: 36 months.

Southern University and A&M College, Baton Rouge, La. -- will improve the materials used in solid oxide fuel cells to increase their efficiency and lower production costs. By analyzing metal oxides at an atomic level, the work will help create fuel cells that generate less waste heat and produce more electricity. Specifically, the relationship between ions, atoms, and electrons will be measured and compared to how well the materials work in fuel cell applications. DOE award: \$200,000. Project duration: 36 months.

California State University, Bakersfield, Calif. -- will study the rock mixture (the heterogeneity) and structure of the Elk Hills field - the fourth largest oilfield in California and the eighth largest in the United States - to increase oil production and, possibly, lead to new gas discoveries in nearby areas. DOE award: \$20,000. Project duration: 12 months.

University of Texas, El Paso, Texas -- will study the combustion characteristics of fuel blends to stabilize the flame and improve ignitability so that emissions are reduced as much as possible. Based on experimental measurements, a model will be developed to help combustion-system designers better predict a combustor's performance. DOE award: \$19,999. Project duration: 12 months.