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DOE to Fund University Research on the Science of Coal and its Impact on the Environment

Universities from 14 States Submit Winning Projects

PITTSBURGH, PA - Sixteen teacher/student research teams in 14 states will share \$3.8 million in Federal funds this year to advance the Nation's coal-science knowledge base and look for new ways to protect the environment as coal use increases in the future.

The winning teams, chosen from a field of nearly 200, were selected in the Department of Energy's annual University Coal Research competition. Strong support for these research teams, each led by a university or college professor, is evident in the \$1.0 million in cost-sharing provided by non-Federal sources.

DOE's Office of Fossil Energy selected the projects from 197 proposals in seven technical categories, ranging from coal to environmental science. Selections were based on technical review by more than 65 academic, industrial and government coal experts.

As part of the grant requirement, at least one student registered at the university will be involved in conducting the research and will receive compensation from the Federal grant. Since the program's inception in 1979, approximately 500 research projects have been funded with a total value of more than \$87 million. These cost-shared grants have furthered the science of energy and the environment and provided the financial support for more than 1,200 students to receive science or engineering degrees.

One goal is to promote research collaboration between academia and industry, enriching the research experience for faculty and students by increasing their exposure to coal science in side-by-side partnerships with the private sector.

Two awards this year will go to joint university-industry projects. One will go to the University of Utah, which will work with Virginia Polytechnic Institute and State University, Terra Tek Inc., and Cyprus-Amax Coal Company, to develop and test an on-line coal washability analyzer.

Brown University won the second award. It will work jointly with Princeton University and New England Power, Inc., to investigate the form, properties, and behavior of organic material in coal-derived ash. Cost-sharing of at least 25 percent of the project's total cost is required for these projects, which can receive up to \$400,000 in Federal funds over three years.

An equally important goal of the University Coal Research Program is to promote collaborative

research between diverse groups of researchers. To help achieve this goal, one grant is being awarded to a Historically Black University. The selected school, Hampton University, is required to perform two-thirds of the DOE funded work and have teamed with at least one majority college or university. Hampton will team with the University of Pittsburgh, Research Triangle Institute, Altamira Instruments, Energy International, and United Catalysts, Inc., to develop a more durable catalyst for application in processes that convert coal-derived synthesis gas to liquid fuels. Hampton also submitted a winning proposal in the core portion of the program.

The majority of projects will receive Federal funding of \$100,000 to \$200,000 for up to three years. Actual grant awards are expected to be in place by July.

The Department of Energy's Pittsburgh Energy Technology Center (PETC) in Pittsburgh, Pennsylvania, oversees the program for the Office of Fossil Energy. Synopses of each of the projects can be obtained by calling PETC at 412/892-6126.

Below is a list of the 16 projects arranged alphabetically by state.

Lead Professor/School	DOE Funding	Other Funding	Project Title
Malay K. Mazumder University of Arkansas 2801 S. University Little Rock, AR 72204	\$199,985	\$162,791	Electronic Surface Structures of Coal and Mineral Particles
R. Linn Belford University of Illinois Dept. of Chemistry 600 S. Mathews Urbana, IL 61801	199,951	128,043	Coal and Coal Constituents Studies by Advanced Electron Paramagnetic Resonance Techniques
Linda J. Broadbet Northwestern University Dept. of Chemical Engineering 2145 Sheridan Rd. Evanston, IL 60208	195,000	0	Coal/Polymer Coprocessing with Efficient Use of Hydrogen
Thomas D. Wheelock Iowa State University 3162B Sweeney Hall Ames, IA 50011	200,000	127,889	Development of a Calcium-Based Sorbent for Hot Gas Cleanup

Ralph T. Yang University of Michigan Dept. of Chemical Engineering 3074 H.H. Dow Building Ann Arbor, MI 48109	199,992	70,926	Pillared Clays as Superior Catalysts for Selective Catalytic Reduction of Nitrogen Oxides
Stratis V. Sotirchos University of Rochester Dept. of Chemical Engineering Rochester, NY 14627	200,000	46,601	Functionally Graded Oxide Coatings for Protection of Silicon Carbide Ceramic Components from Corrosion
Gregory J. McCarthy North Dakota State University Dept. of Chemistry Fargo, ND 58102	199,975	16,993	Residues from Coal Conversion and Utilization: Advanced Mineralogical Characterization and Disposed Byproduct Diagenesis
Khaled A. M. Gasem Oklahoma State University 423 Engineering North Stillwater, OK 74078	200,000	20,000	Phase Behavior of Light Gases in Hydrocarbon and Aqueous Solvents
Michael Grutzeck Pennsylvania State University 104 Materials Research Lab. University Park, PA 16802	200,000	0	SO ₂ Removal from Flue Gases Using Utility Synthesized Zeolites
K. Osseo-Asare Pennsylvania State University 209 Steidle Building University Park, PA 16802	200,000	0	Aqueous Biphasic Extraction for Processing of Fine Coal
Radisav D. Vidic University of Pittsburgh	139,871	71,082	Development of Novel Activated Carbon-Based Adsorbents for the Control of Mercury Emissions from Coal-Fired Power Plants

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Robert H. Hurt Eric M. Suuberg Brown University Division of Engineering Box D Providence, RI 02912	400,000	137,898	Fundamental Study of Low-NOx Combustion Fly Ash Utilization
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Kyriacos Zygourakis Rice University Dept. of Chemical Engineering Houston, TX 77251	200,000	0	Mechanisms and Optimization of Coal Combustion
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Jan D. Miller University of Utah Dept. Of Metallurgical Eng. 216 WBB Salt Lake City, UT 84112	399,996	194,575	Development of an On-Line Coal Washability Analyzer
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Ates Akyurtlu Hampton University Dept. of Chemical Engineering Hampton, VA 23668	199,993	0	Investigation of Mixed Metal Sorbent/Catalysts for the Simultaneous Removal of Sulfur and Nitrogen Oxides
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K. Jothimurugesan Hampton University Dept. of Chemical Engineering Hampton, VA 23668	375,000	125,454	Attrition Resistant Iron-Based Fischer-Tropsch Catalysts
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