

# ***Grants Awarded***

**From 6/1/06 To 6/30/06**

***Principal Investigator:*** Jie Cui, Mechanical Engineering

***Supporting Professionals:*** Mahesh Panchagnula, Mechanical Engineering

***Project Title:*** Combustion and Performance Optimization of Coal-Fired Units Equipped with Ecojets:  
Phase 1

***Activation Amount:*** \$25,286.00

***Agency:*** Synterprise Solutions, LLC

This project is related to the retrofit of existing coal-fired power plants with Ecojet Technology in order to reduce Nox. A commercial CFD code which includes combustion optimization would be employed for optimizing the performance of the unit.

***Principal Investigator:*** Bradford Cook, Biology

***Project Title:*** Spotfin Chub (*Erimonax monachus*) Microhabitat Evaluation, Emory River Watershed

***Activation Amount:*** \$10,800.00

***Agency:*** The Nature Conservancy

# ***Grants Awarded***

**From 6/1/06 To 6/30/06**

***Principal Investigator:*** Hayden Mattingly, Biology

***Project Title:*** Science Advisory Committee Coordination for the Northern Cumberland Plateau Habitat Conservation Plan

***Activation Amount:*** \$12,500.00

***Agency:*** The Nature Conservancy

***Principal Investigator:*** Stephen Canfield, Mechanical Engineering/James Beard, Energy Systems Research

***Project Title:*** NDE Testing Boiler Water Wall Inspection Robot

***Activation Amount:*** \$3,510.00

***Agency:*** ARF, Inc./EPRI I&C Center

TTU has been collaborating with TVA to develop robots for inspecting boiler tubes, penstocks, and storage tanks for hazardous materials. In this particular project, the robot will be modified to travel over 7-8" flanges associated with typical penstocks and to improve traction in a variety of conditions.

# ***Grants Awarded***

**From 6/1/06 To 6/30/06**

***Principal Investigator:*** Glen Johnson, Engineering

***Project Title:*** Tennessee Space Grant Consortium Award

***Activation Amount:*** \$10,000.00

***Agency:*** Vanderbilt University via NASA

This outreach program is to introduce middle school girls to career opportunities in science, math, engineering, and technology. With support from the Space Grant, we will emphasize space exploration and space related industry.

***Principal Investigator:*** Sastry Munukutla, Energy Systems Research/Stephen Idem, Mechanical Engineering

***Supporting Professionals:*** Robert Craven, Energy Systems Research

***Project Title:*** Boiler Cleanliness Model at Brandon Shores

***Activation Amount:*** \$10,000.00

***Agency:*** Clyde Bergemann

This project deals with development of a heat transfer model for various sections of the boiler. The information generated from the software will be used as an advisor for soot-blowing events.

# ***Grants Awarded***

**From 6/1/06 To 6/30/06**

***Principal Investigator:*** Hayden Mattingly, Biology/Tyler Black, Biology

***Project Title:*** Impacts of Human Landuse Activities on Blackside Dace Reproductive Ecology:  
Evaluating the Role of Siltation

***Activation Amount:*** \$20,759.00

***Agency:*** The Nature Conservancy

***Principal Investigator:*** Sastry Munukutla, Energy Systems Research/Stephen Idem, Mechanical Engineering/  
L. K. Crouch, Civil and Environmental Engineering

***Project Title:*** Power-Test-Service Account Projects

***Activation Amount:*** \$22,728.00

***Agency:*** various

# ***Grants Awarded***

**From 6/1/06 To 6/30/06**

***Principal Investigator:*** Ben Byler, Agriculture

***Project Title:*** Tennessee Association FFA Camp Clements Leadership Grant 05-06

***Activation Amount:*** \$400.00

***Agency:*** Tennessee Department of Education

***Principal Investigator:*** Sastry Munukutla, Energy Systems Research/Stephen Idem, Mechanical Engineering

***Project Title:*** Generic Cleanliness and Plant Heat Rate Program Application

***Activation Amount:*** \$70,000.00

***Agency:*** Clyde Bergemann, Inc.

A generic model is being developed for monitoring the cleanliness factor in the furnace of a power plant. In addition, a generic model is being developed for monitoring boiler efficiency in real time. These two pieces of information will be used in conjunction with other parameters in order to do intelligent soot blowing.

***Principal Investigator:*** Ben Byler, Agriculture

***Project Title:*** Tennessee Association FFA Camp Clements Grant-Maintenance Worker

***Activation Amount:*** \$1,976.00

***Agency:*** Tennessee Association of FFA

## ***Grants Awarded***

**From 6/1/06 To 6/30/06**

***Principal Investigator:*** Satish Mahajan, Electrical and Computer Engineering/Ghadir Radman, Electrical and Computer Engineering/Sastry Munukutla, Energy Systems Research

***Supporting Professionals:*** Jie Cui, John Peddieson, Stephen Idem, Mechanical Engineering/Peter Li, Earth Sciences/Wenzhong David Gao, Energy Systems Research

***Project Title:*** Optimization of High Voltage Lines

***Activation Amount:*** \$830,000.00

***Agency:*** ORNL-UT Battelle

This effort is targeted at optimization of power flow through high voltage transmission lines by addressing online acquisition of sag information, by judiciously choosing location and type of VAR compensation, and by modeling and testing current transformers for the estimation of "loss of life" so that existing CTs can be safely used during short term overload conditions.

***Principal Investigator:*** Kenneth Currie, Manufacturing Center

***Project Title:*** Testing and Design 2005-06

***Activation Amount:*** \$64,912.00

***Agency:*** various industries

# ***Grants Awarded***

**From 6/1/06 To 6/30/06**

***Principal Investigator:*** Dennis George, Water Center

***Project Title:*** Water Center Analytical and Computer Services

***Activation Amount:*** \$102,441.00

***Agency:*** various

***Principal Investigator:*** Francis Otuonye, Administrative Offices

***Project Title:*** Community Opportunities, Training, and Educational Services

***Activation Amount:*** \$1,496.00

***Agency:*** Upper Cumberland Human Resource Agency

# ***Grants Awarded***

**From 6/1/06 To 6/30/06**

***Principal Investigator:*** Kenneth Currie, Manufacturing Center

***Project Title:*** Manufacturing Center Workshop Agency Account 2005-06

***Activation Amount:*** \$2,575.00

***Agency:*** various industries

***Principal Investigator:*** Kenneth Currie, Manufacturing Center

***Project Title:*** General Work Study 2005-06

***Activation Amount:*** \$191,041.00

***Agency:*** various industries