



# The University of North Carolina

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## MEMORANDUM

To: Committee on Educational Planning, Policies and Programs

From: Molly Corbett Broad *Molly Corbett Broad*

Subject: Establishment of the Center for Energy Research and Technology at North Carolina Agricultural and Technical State University

### Request to Establish

In January 1999, North Carolina Agricultural and Technical State University received authorization to plan the Center for Energy Research and Technology. The planning is now complete, and NC A&T has submitted a request to establish this unit as an institutional research center. The following sections briefly summarize the information provided by NC A&T to satisfy the requirements of *Administrative Memorandum #373*.

### Goals and Objectives

The center's goal is to make NC A&T the leader in interdisciplinary education, research, development, and training in the energy-related planning, design, and operation of buildings. Through the application of energy technologies and management skills to the built environment, its activities and services will improve the quality of life in North Carolina and beyond. To that end, the center will:

- Build interdisciplinary and collaborative teams to provide comprehensive analysis and promote effective action related to the commercial adoption of innovative energy-efficient technologies.
- Adopt a competency-based research agenda focusing on manufactured housing, energy audits and measurement verification, fuel cells and reforming research, and renewable energy.
- Facilitate the application of energy-related technologies to buildings by disseminating information and conducting outreach programs.
- Collaborate with the building industry through its representation on the center's External Advisory Board and through a network of external partnerships.
- Develop practical research, education, and training programs for traditional and non-traditional students.

Appalachian State University

East Carolina University

Elizabeth City State University

Fayetteville State University

North Carolina Agricultural and Technical State University

North Carolina Central University

North Carolina School of the Arts

North Carolina State University at Raleigh

University of North Carolina at Asheville

University of North Carolina at Chapel Hill

University of North Carolina at Charlotte

University of North Carolina at Greensboro

University of North Carolina at Pembroke

University of North Carolina at Wilmington

Western Carolina University

Winston-Salem State University

### **Relevance to Institutional Mission; Relationship with Existing Academic Units**

The center will capitalize on its distinctive set of expertise and experience, which is unique within the University. NC A&T is the only UNC institution offering programs in both architectural engineering and construction management and safety. While no similar units exist within the University, the center will have extensive relationships with related NC A&T units such as the Center for Composite Materials Research, the Center for Smart Materials, the Institute for Human-Machine Studies, and the Autonomous Control and Information Technology Center. The center will also contribute to the graduate and undergraduate programs of the participating departments, including civil engineering, agricultural and biosystems engineering, mechanical engineering, electrical engineering, construction management and safety, business administration, and human environment and family sciences. Related units in the state include the Advanced Energy Corporation and the North Carolina Solar Center, but neither target the same set of energy technologies, nor do they focus on the education and preparation of future professionals.

### **Anticipated Effects on Instructional Programs**

The center will impact instructional programs of the participating departments in a variety of beneficial ways. It will increase the number of minorities who graduate with a background in energy efficiency, develop new course offerings and strengthen new courses based on findings of research projects, recruit strong students by providing enrichment programs for middle and high school students during the summer and academic year, and offer continuing education for middle and high school students.

### **Administrative Structure**

The center's Director will be Dr. Harmonhinder Singh, Professor of Civil, Architectural, and Environmental Engineering at NC A&T. The Director will report to the Vice Chancellor for Research. An External Advisory Board, composed of representatives of the building industries, energy development and management institutions, governmental agencies, energy utilities, and academic institutions will advise the center regarding long-term policies, current issues, project evaluation, and interactions with agencies and industries. An Internal Advisory Board, composed of the Provost and the Deans of all participating Schools at NC A&T, will coordinate the center's activities with those of other NC A&T units.

### **Budget and Anticipated Sources of Funding**

In FY 2001-02, the center has received over \$700,000 in external funding. This amount is expected to grow by 5 percent per year for the next five years. Although the North Carolina State Energy office is the center's major external sponsor, the center also receives grants and contracts from federal agencies such as the Department of Energy, the Army Construction Engineering Research Laboratory, the Oak Ridge National Laboratories, the National Science Foundation, and the Department of Housing and Urban

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Development, as well as industry sponsors such as Honeywell and Tracted International. Faculty salaries are covered through existing departmental budget lines, and no additional state funding will be needed.

**Space and Capital Needs**

At present, no additional capital improvements are anticipated. Current support from funded projects will meet initial needs for equipment and library resources. The center will operate in offices and laboratories provided by the participating NC A&T schools and the Fort Interdisciplinary Research Center. This space will sustain the center for at least the first five years of operation.

**Recommendation**

It is recommended that North Carolina Agricultural and Technical State University be authorized to establish the Center for Energy Research and Technology.