

FINAL REPORT
Development of a Regional Hydrogen Technology Education Consortium

Project Period: October 2004 – March 2006

Recipient Organization: North Carolina A&T State University
Center for Energy Research & Training
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Partners: University of Florida (cost share)
University of Georgia (cost share)
University of South Carolina (cost share)

Contract #: DE-FC36-03GO13026

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1. **Project Objective:** This effort led by a consortium of four universities will provide education and training for students, professionals, and the public. The consortium will establish centers at each university, develop courses, workshops, establish a quarterly electronic newsletter, and develop and disseminate K-12 outreach materials.
 2. **Background:** In response to current interest shown in hydrogen and fuel cells, diverse audiences such as students, regulators, legislators, city officials, industry, and the general public need to be made aware of all aspects of the technology. The primary target of this project was the education of students at grades K-12 and at the community college and university levels. This project is a multi-state effort designed to exchange information between states, regions, and nationally. Meetings provided to government and industry associations will allow for information exchange to these target audiences as well.
 3. **Patents:** None
 4. **Publications/Presentations:** None

The State Technologies Advancement Collaborative (STAC) established three multi-state projects focused on hydrogen technology learning centers. The North Carolina A&T State University received one of the awards to establish a regional Hydrogen Technology Education Consortium (HyTEC) for the south. Each of the three centers was initially funded for a six month period, and no additional funding was provided for the work. The following information, provided by task, includes all work efforts undertaken and accomplished for this project.

Task 1. Development of University Courses – A preliminary course outline was developed for a course on Fuel Cells. Portions of the proposed course material were used in an existing undergraduate and graduate Energy Conversion course to test the material and get student feedback. Several existing course modules for application of engineering principles of heat and mass transfer, fluid dynamics and thermodynamics to Hydrogen Energy Systems were reviewed and updated as necessary.

Task 2. K-12 Students and Science Teachers – Instructional materials on Fuel Cells and Hydrogen were developed at NCA&T for high school students and science teachers. During the summer of 2005, workshops and education experience was provided to school students and math/science teachers from local North Carolina schools. Forty-two students and three teachers participated.

Task 3. State and Local Government Officials – The University of South Carolina made a presentation in March 2005 titled, “Fuel Cell at the Green Dorm” that described the education program and data acquisition capabilities for the fuel cell. This was followed by a tour of the fuel cell.

Task 4. End Users and Industry Groups – The Industrial Advisory Board of the National Science Foundation Industry/University Cooperative Research Center for fuel cells was hosted at a seminar on hydrogen production from natural gas in the reformer.

Task 5. General Public – The University of Florida developed and distributed an electronic newsletter on Hydrogen and Fuel Cells. The State Energy Offices and various community groups served as distribution points. The newsletter can be accessed at the following link: <http://seecl.mae.ufl.edu/hytec/hytec.html>

Task 6. Hydrogen Technology Demonstration – North Carolina A&T University, Universities of South Carolina and Georgia used their respective 5k Fuel Cell Stacks to showcase this emerging technology to various education, industry, and public groups.

Summary

While we were disappointed that the program funding did not allow completion of all activities, we are pleased by the response to the project. We feel that this project has developed interest in this important technology and has offered students the opportunity to learn about the benefits of this technology. The University of Florida will continue publication of a Hydrogen/Fuel Cell newsletter.