VII.2 Fuel Cell Demonstration with On-site Generation of Hydrogen (New Project)*

Tim Turner (Primary Contact)
North Carolina Solar Center
North Carolina State University
Campus Box 7401
Raleigh, NC 27695
Phone: (919) 280-7663; Fax: (919) 515-5778; E-mail: tim_turner@ncsu.edu

DOE Technology Development Manager: Christy Cooper
Phone: (202) 586-1885; Fax: (202) 586-9811; E-mail: Christy.Cooper@ee.doe.gov

**Congressionally directed project*

Objectives

- Education and outreach
- Baseline demonstration of hydrogen fuel with zero emissions from source to sink
- Supplemental and backup electrical power for operational purposes
- Core facility for hydrogen-related research at North Carolina State University

Technical Barriers

This project addresses the following technical barriers from the Education section of the Hydrogen, Fuel Cells and Infrastructure Technologies Program Multi-Year Research, Development and Demonstration Plan:

- A. Lack of Awareness
- B. Lack of Demonstrations or Examples of Real-World Use
- C. Institutional Barriers and Access to Audiences

Approach

The demonstration will consist of

- On-site generation of hydrogen by electrolysis of water, powered by an existing photovoltaic system
- A stationary proton exchange membrane (PEM) fuel cell in an operational setting, to provide backup power and charging of electric vehicles
- A tabletop demonstration of electrolysis and fuel cells
- Education and outreach to schoolchildren, the general public, policy makers, trades people, and technology professionals