



NCSU SOLAR HOUSE

PROPANE

FUEL CELL

GEOHERMAL

PASSIVE SOLAR

.....

date

12/7/08

location

**NCSU
MCKIMMON CTR**

time

2:00PM

A VISIT TO THE 27-YEAR-OLD NC STATE UNIVERSITY SOLAR HOUSE
TO LEARN ABOUT ALTERNATIVE ENERGIES AND THEIR APPLICATION



Dec 7th 2008 Meetup in front of the NCSU Solar House



Geothermal HVAC - keep it 62 degrees



SMARTT Challenge - Fully Electric Car



Solar Electricity Demonstration



The Moon? or just a skylight

Hydrogen Generation and Fuel Cell Demonstration

The NC Solar Center has constructed an end-to-end operational system using Photovoltaics, hydrogen generation, and PEM fuel cells to provide supplemental power to the Center's new Alternative Fuel Vehicle Garage.

Photovoltaic panels provide electricity to power a generator that produces hydrogen by means of electrolysis. Hydrogen is stored in low pressure storage tanks before being fed into a fuel cell system consisting of three 1 kW PEM fuel cells. Electricity produced by the fuel cells is stored in batteries and inverted into Alternating Current for use by the AFV garage.

CONCEPT

- Electricity from renewable source, in this case Photovoltaic Panels
- Hydrogen produced from electrolysis of water
- Electricity produced by PEM Fuel Cells and inverted into AC power
- Excess Hydrogen stored for later use
- Emergency power available for use by the AFV garage

BENEFITS

- Clean - Zero Emissions
- On-Site Energy Production - Not Dependent on utility grid
- Flexibility - Demonstrates ability to produce electricity and hydrogen from renewable sources
- Viability - Demonstrates recent advances in renewable power technologies

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State Energy Office
ENERGY
www.energy.nc.gov 1-800-662-7333

NORTH CAROLINA
SOLAR CENTER
NC STATE UNIVERSITY

Fuel Cell technologies

• International Dome House using Expanded Polystyrene, visit www.i-domehouse.com

• Watch the movie by googling "Deconstruction: House of the Future"

- www.energync.org/
- www.ncsc.ncsu.edu/
- www.ncgreenbuilding.org/
- www.alternativeenergync.com/