

## **X.4 Hydrogen Futures Park at The University of Montana\***

*R. Paul Williamson, Dean*

*The University of Montana-Missoula College of Technology*

*909 South Avenue West*

*Missoula, MT 59801*

*Phone: (406) 243-7851; Fax: (406) 243-7899; E-mail: paul.williamson@umontana.edu*

*DOE Technology Development Manager: Christy Cooper*

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

*DOE Project Officer: Paul Bakke*

*Phone: (303) 275-4916; Fax: (303) 275-4753; E-mail: Paul.Bakke@go.doe.gov*

*Contract No. DE-FC36-04GO14244*

*Start Date: November 2004*

*End Date: October 2005*

*\* Congressionally directed project*

### **Objectives**

- Objective 1: To develop a college curriculum for energy technicians and energy engineers. The University of Montana – College of Technology plans to work cooperatively with its sister institution, Montana Tech, to develop and make available a complete college alternative energy curriculum. This curriculum will provide one, two and four year education programs for technicians and engineers providing the hydrogen workforce infrastructure needed in a hydrogen economy. This basic and advanced educational program will provide traditional, non-traditional and hands-on training opportunities for hydrogen and alternative energy professionals as well as lay persons that support business entrepreneurs, agencies and organizations. Deliverable: Complete set of college level, curriculum materials, covering alternative energy technology involving hydrogen, developed for this objective.
- Objective 2: To establish a hydrogen safety training center at The University of Montana – College of Technology that provides cutting-edge training and education for existing and emerging hydrogen businesses and industries on a national basis. The University of Montana-College of Technology plans to establish world class hydrogen safety training and education to serve as a focal point for education transfer of information and communication in the hydrogen safety area. The College will work with national professionals, faculty, staff, energy leaders, and safety training providers to identify, research, and demonstrate safe use and operation of hydrogen. Deliverable: Hydrogen safety training and educational materials (lesson plans, handouts, presentations, brochures, etc.) and establish a hydrogen safety technology training center that will be developed for this objective.
- Objective 3: To develop a Hydrogen Futures information and education web site supporting the growth and development of a hydrogen economy. The University of Montana – College of Technology will develop a Hydrogen Futures site that will document, link and provide vital information on the hydrogen economy and the educational efforts needed in a hydrogen infrastructure. Deliverable: Hydrogen Futures web site materials developed for this objective.
- Objective 4: The University of Montana – College of Technology will work with consultants and faculty to develop a plan (using non-DOE funds) for the programs and facilities needed in the Hydrogen Futures Park. Deliverable: A final program plan and layout plan of facilities in support of a Hydrogen Futures Park.

**Barriers**

This project addresses the following technical barriers from the Education section (3.8.4.1) of the Hydrogen, Fuel Cells and Infrastructure Technologies Program Multi-Year Research, Development and Demonstration Plan:

- A. Lack of Awareness
- B. Lack of Demonstration or Examples of Real World use
- C. Institutional Barriers and Access to audiences
- D. Regional Differences

**Approach**

- Identify needs of industry for both the present and future
- Amass knowledgeable information advisory groups to provide content input
- Identify coursework needed to address workforce infrastructure needs
- Engage faculty in development of Web based curriculum
- Establish K-12 hydrogen learning site for alternative energy instruction
- Develop a safety training center
- Develop plan for national demonstration and education center of excellence

**Accomplishments**

- Two year curriculum identification completed
- Faculty developers identified
- K-12 Web site designed and ready to go live
- Safety training center planning with partners is ongoing
- Phase I Planning complete for phase II implementation of Hydrogen Futures Park

**Future Directions**

- Articulate two year program with four year engineering program
- Establish a national consortium of colleges involved in alternative energy education
- Provide nation-wide, web based training for alternative energy workers
- Establish College as a technology center for ongoing support of DOE initiatives
- Provide hands-on, field oriented training at all levels of the technical spectrum
- Construct the Hydrogen Powered, sustainable Futures Park at the University of Montana
- Develop the College's alternative energy learning site to train and demonstrate alternative technologies for energy development

## **Introduction**

The University of Montana Missoula College of Technology is leading the state in the development of alternative and hydrogen technology and education in ways that will have a positive affect on the state's present and future economy. This collaboration with DOE has provided the first steps in this endeavor and has established the groundwork to create the infrastructure needed as the energy paradigm is shifted.

The over-arching goal of the Montana Hydrogen Futures Project is to provide the best source of energy and workforce that new energy future needs by establishing the programs and facilities that are required. By establishing a cutting-edge program, energy production and sustainable, hydrogen demonstration center of excellence much will be accomplished and leadership in the new future provided.

## **Approach**

The College of Technology seeks to accomplish its goals by involvement of grassroots as well as educational, political and national leaders in the development of its programs, objectives and facilities to meet the needs of a newly emerging culture and sustainable life environment.

## **Results**

The results are still ongoing and yet to be assessed, measured and reported.

## **Conclusions**

The approach we are using has received great acceptance and endorsement.

People are ready for a new energy paradigm. Technology advances have to be made real and demonstrated for full adoption. Additional monetary support is needed if we are to be able to turn the corner.

## **Presentations**

We have made presentations all across Montana to over 3,000 persons in small towns, cities, corporate arenas, community agencies, and political venues. All of which have proven to be overwhelmingly supportive and have generated a high level of interest in a hydrogen economy.