

State and Local

A&M scientists trying to perfect means of producing hydrogen

By JENS B. KOEPKE
Senior Staff Writer

The Texas A&M Hydrogen Research Center, formally recognized by the Board of Regents at its Nov. 27 meeting, is concentrating its work on perfecting better ways to produce hydrogen, the center's senior scientist said Thursday.

"We solve the basic problems that will allow the processes to be industrialized," Dr. Benjamin Scharifker said.

Scharifker said the center is developing two methods to produce hydrogen:

- One process uses solar energy captured in a photoelectric cell to split water molecules into oxygen and hydrogen. The system requires no electricity and is the most efficient solar-powered photoelectrolysis system in the country.

- The second process uses electricity to split hydrogen sulfide into hydrogen and sulfur. The hydrogen sulfide is obtained from natural gas and from the desulfurization of crude oil and coal, and must be broken down because it can mix with the atmosphere resulting in acid rain. Currently the sulfide is dis-

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— Dr. Benjamin Scharifker, senior scientist at the Texas A&M Hydrogen Research Center.

posed of by being burnt in a Claus plant. The center is now ready to develop a pilot plant to produce large amounts of hydrogen using this process.

The economical production of hydrogen is important because its use as a fuel will become more viable as fossil fuels become scarcer, Scharifker said. By the year 2000, the production rate of liquid fossil fuels will not be able to keep up with the rate of consumption, he said. In contrast, hydrogen fuel burns cleanly and is virtually inexhaustible.

Internal combustion engines that run on gaseous hydrogen and are as efficient as gasoline-powered engines have been developed, Scharifker said. Although the hydrogen

engines cost twice as much as their gasoline counterparts to operate, the engines themselves cost the same amount. The higher pricetag comes from the present cost of hydrogen fuel. Hydrogen-powered engines will become more commercially viable because as technological developments lower the price of hydrogen fuel, the scarcity of fossil fuels will increase the cost of gasoline, he said.

Coal, even though its world resources are large, currently cannot solve the impending fuel shortage

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problem because a practical liquid fuel has not been developed from it, Scharifker said.

The A&M center was established

in July 1983 with help from the National Science Foundation as the Center for Hydrogen Technology, said Bill Craven, the center's manager. Designed by the NSF to foster cooperation between universities and industries, the center operated on a \$300,000 budget, half from coming from the NSF and half from companies and individuals. The NSF will provide funding for the center until 1987 after which funding will come from individuals and companies.

Formal recognition by the regents puts the center in the directory which gives it more identification and visibility within the University, Craven said.

"Being part of a university means that everything we do here is being recognized by the institution and this gives us more leverage to raise funds," Scharifker added. "We can now benefit from all the fame and prestige of Texas A&M as a leader in technological advancement."

The center's next major project is the extraction of hydrogen from coal, Scharifker said. A mixture of coal and water would be electrolyzed to produce hydrogen and liquid hydrocarbons similar to diesel fuel.

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