



State proposals driven by promise of fuel cell technology

by *Tim Anderson*

Much has been made about the potential environmental and economic benefits related to advances in fuel cell technology. But for many Michigan workers, the promise of the alternative energy source brings with it a threat as well: the possible loss of jobs.

About 27,000 people work in the state's 15 engine and transmission plants, and the employment of thousands of others is either directly or indirectly linked to the industry. A growing number of scientists and industry experts, though, believe that use of the internal combustion engine could slow or even die by the end of the 21st century.

"The governor has called fuel cell technology the next logical step with automobiles, and I believe he's right," says Republican Sen. Bev Hammerstrom. "That makes it very important for us to have the research and the industry here in Michigan."

Widespread use of the new power resource in automobiles may be decades or more away, but states already are positioning themselves with the hope that they will become the center of a potentially high-growth industry. Michigan, in fact, has to look no farther than its neighbor to the south to realize the competition has begun.

Ohio Republican Gov. Bob Taft recently proposed a \$100 million, three-year fuel cell initiative as part of his larger Third Frontier Project. Most of the money would be used to make strategic capital investments in the industry through the allocation of low-interest loans. The remaining funds would go toward worker training programs and various fuel cell research and demonstration projects.

Taft believes the investment will "bring high-tech, high-paying jobs and significant revenue" to Ohio, adding that advances in fuel cell technology will impact existing core industries in the state (electronics, advanced manufacturing, etc.)

Michigan, of course, has relied heavily on the automobile industry for the last century. The state was the home for the first

patent on the gasoline-powered automobile and the world's first mile-long concrete road. Currently, more than one-third of North America's auto transmission and engine manufacturing industries are located in the Wolverine State.

But in announcing plans for a fuel cell initiative, Republican Gov. John Engler warned: "Michigan cannot sit back and assume that

being home to the auto industry is our birthright."

Plans to lure business

In May, the Michigan Economic Development Corp. introduced a legislative package — called the NextEnergy Initiative — that aims to attract fuel technology research and industry to the state. The legislation would do the following:

- Create a state authority to promote the research and development of alternative energy technologies and related economic development in Michigan.
- Develop an Alternative Energy Zone on a 700-acre parcel of state property (with the possibility of expansion) in Ann Arbor, near the University of Michigan. Tax breaks would be given to groups willing to locate there and to pursue research, development or manufacturing opportunities related to alternative energy.
- Provide sales and use tax exemptions for individuals or businesses that purchase stationary or vehicular devices utilizing alternative energy technologies.
- Offer a single business tax to companies whose product or service is related to alternative energy technologies.
- Exempt alternative energy companies from the personal property tax.

Hammerstrom says she hopes that the Michigan Legislature can act on the measures by this fall.

"We want to move on it as quickly as possible because of the fact that other states are [moving forward with their own initiatives] already," the Republican from Temperance says. "If the automotive companies are going to make decisions about where they're going to locate

that particular aspect of their operation [fuel cell technology], we certainly don't want them to leave the state."

Tight fiscal conditions could complicate efforts to pass the Michigan legislation. In particular, lawmakers do not want to

pass measures that take existing tax dollars out of the state's revenue stream.

"We want to make sure it's only future revenue being eliminated," adds Hammerstrom, whose district would be home to the proposed Alternative Energy Zone. Other potential stumbling blocks include the extent to which power and autonomy would be given to the new state

authority on alternative energy technologies.

Still, Hammerstrom believes most lawmakers recognize the value of promoting the state as a leader in fuel cell technology.

"We're trying to not only bring in research to develop this, but we're trying to take it to the next step as well and encourage individuals and businesses to utilize what will be created [by offering sales and use tax exemptions]," she says. "It's a matter of time and costs with fuel technology. We have to get the costs down to where it can compete with regular fuels."

Uncertain future

Interest in fuel cell technology has been driven by a combination of political, environmental and economic factors. Concerns about the United States' reliance on foreign oil have heightened as a result of the Sept. 11 terrorist attacks and instability in the Middle East. Meanwhile, questions continue to be raised about the possibility of an oil shortage and skyrocketing gas prices, while traditional worries about fossil fuels' relation to global warming have not dissipated.

These factors have all led to greater pressures on the federal government to devote more resources to alternative energy solutions such as fuel cell technology. Still, major innovations will need to occur before fuel cells can compete economically with the power trains currently used in stationary products and, especially, automobiles.

A report done for Michigan by The Center for Automotive Research (available at www.nextenergy.org) details many of these challenges and also offers suggestions on how the state can position itself as a fuel cell technology center.

For example, the study suggests that the state begin work on creating a "hydrogen infrastructure" in order to be known as a "leader in the development of the hydrogen economy." Hydrogen, which along with oxygen is converted into electricity and heat by fuel cells, is difficult and costly to store and transport.

In addition, the center's report recommends the creation of a Power Electronics Center of Excellence.

"A critical component of fuel cell-powered vehicles — and all other hybrid-type vehicles — will be the development and manufacture of power electronics," the report finds. "The state is not currently a leader in power electronics; this stands as a significant challenge."

Many other challenges — and uncertainties — will confront states interested in becoming hubs for fuel cell research and industries. But recent legislative proposals indicate that at least some believe early investments are critical to securing economic rewards down the road. 🚀



Some experts believe that, in the coming decades, fuel cell technology will replace the internal combustion engine in automobiles.