ENERGY ALTERNATIVES

It's time we control our own destiny

Mary Ann Wright

Pick up a newspaper or turn on the TV anywhere in the world, and you will find a discussion about oil.

Global leaders are striving to reduce their countries' dependence on foreign oil and are stretching to reduce greenhouse gas emissions.

Where do we stand in the United States?

Today, we are standing still. Some might say we are going backward. We must reverse the decline in manufacturing investment and eliminate the malignant transfer of our national wealth that results from purchases of foreign energy. This year alone, the United States will spend nearly a half-trillion dollars on foreign oil.

Since the OPEC oil embargo of 1973, America has done little to secure its long-term energy future. The lack of interest and investment in alternative, domestic energy sources is now painfully familiar to all Americans.

Fortunately, there is an effective replacement for petroleum motor fuels: electricity.

But America must not swap today's oil cartel for an Asian battery cartel. Today, nearly all the batteries for hybrid electric vehicles and plug-in electric hybrid vehicles, along with the materials and equipment to manufacture them, are made in the Pacific Rim countries. Also, most of the other key electric powertrain components are available today only from offshore sources, primarily in Asia.

Without a domestic manufacturing and supply base for advanced battery systems, America's energy security will continue to be held hostage, exacerbating our economic problems from the trade deficit and a vanishing manufacturing base.

Major industries, including automotive and energy, must team up with universities and the federal laboratory network to leverage domestic resources better. The Department of Energy's support of the U.S. Advanced Battery Consortium program has been a good success story. But innovation must be accelerated. And, most important, there must be a laser-beam focus on product commercialization and the establishment of an advanced battery manufacturing base.

The key ingredients for success exist, but commitment and coordination are needed. During a recent visit to Oak Ridge National Laboratory, I was encouraged to see a unified mission to assist the manufacturing sector in basic energy r&d and manufacturing technology.

Ultimately, we must build vehicles that use clean, domestically produced energy and that appeal to both common sense and an increasingly demanding customer.

A long, tough road

A powerful opportunity lies on the horizon, and the door is open for America to control its own destiny. Fuel-efficient vehicles — including hybrids, plug-in hybrids and electric vehicles — offer a variety of benefits. In addition to cleaning the air and reducing carbon dioxide emissions and oil consumption, those vehicles will help to revitalize our economy.

To reap those benefits, we must invest our time, human resources and funding to develop the manufacturing infrastructure to become a global leader in the development and production of those vehicles.

Going forward we must:

- Establish a domestic supply base for advanced battery systems, the equipment to manufacture them and for electric motors and controllers.
- Develop high standards for batteries and other components and systems.
- Implement federal incentives for consumers to purchase hybrids and plug-ins and for manufacturers to invest in product development and production of those new technologies here in the United States.
- Create national Centers of Excellence — hubs incorporating industry, universities and federal labs — to ensure that U.S. innovations become U.S.-manufactured products.
- Maintain high corporate average fuel economy standards and implement energy efficiency and CO2 reductions across all industries, not just automotive.

160,000 engineers needed

Japan currently leads in hybrid development, which is no surprise in view of the decades-long cooperation between the government and industry. Japan's leadership in the development and production of hybrid vehicles, including a stranglehold on the supply base, is a perfect example of the benefits of a formalized government-industry partnership.

The United States must adopt a similar approach. An increase in engineering talent also is essential. The U.S. Bureau of Labor Statistics has projected a need for 160,000 more engineers by 2016.

Equally alarming is that 59 percent of all undergraduates in China and 66 percent of all undergraduates in Japan are graduating with technical degrees. Only 32 percent of U.S. students are.

Our universities must implement curricula that will enable their graduates to compete in an increasingly technical global workplace. We must rekindle students' desire to have a positive impact on their world through the application of science and technology. We need to put the sexiness back into math and science.

We have a strong history of persevering and dominating innovation and production. It will take concerted, sustained investment and collaboration involving industry, government and academia to return us to that position of pre-eminence and sustainable economic health.

Japan's leadership in the development and production of hybrid vehicles is a perfect example of the benefits of a formalized government-industry partnership. The United States must adopt a similar approach.

comment

Mary Ann Wright is CEO of Johnson Controls-Saft Advanced Power Solutions LLC.

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