

## \$100 million prize for energy breakthrough? House considers incentives for hydrogen research & development

By Adina Postelnicu, Medill News Service  
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**WASHINGTON (MarketWatch) -- With energy prices skyrocketing, lawmakers considered a bill Thursday that would offer more than \$100 million in prize money to developers of technologies that would move the oil-dependent U.S. economy toward a hydrogen energy base.**

Sponsored by Rep. Bob Inglis, R-S.C., the legislation was the focus of a hearing at the House Science Committee. The measure would create three prize categories ranging from \$1 million to \$100 million to spur inventors to overcome the technical barriers to a widespread commercialization of hydrogen as an energy source.

Hydrogen is the most abundant element in the universe, but is scarce on Earth in its elemental form. With breakthroughs in making, storing, transporting and using it, hydrogen could provide a clean and cheap energy source. When hydrogen is burned, the only byproduct is water.

Hydrogen could replace fossil fuels as the major energy source.

Committee members said the House will consider legislation dealing with hydrogen power next month as part of the Republican effort to address rising energy prices.

"The future will be grim if we don't act now," said Committee Chairman Sherwood Boehlert, R-N.Y.

Under Inglis' bill, four prizes of \$1 million each would be awarded annually for technologies for hydrogen production, storage, distribution and utilization. The bill, called the H-Prize Act of 2006, also promotes a \$4 million prize awarded every other year for the development of a working hydrogen vehicle prototype.

The big prize, \$100 million, would be \$10 million in cash and up to \$90 million in matching funds for private capital. It would be awarded for changes in hydrogen technologies that meet or exceed criteria set for distribution to the consumer.

"We want to see if markets agree with your product...We are not interested in developing technology and put it on the shelf," said Inglis, chairman of the House research subcommittee.

Praising Inglis's initiative, Boehlert said that the proposed prizes should not be a

substitute for the existing hydrogen research and development programs. "Those [programs] are necessary to make sure the nation has a cadre of experts."

But Rep. Judy Biggert, R-Ill., expressed skepticism that the rewards proposed by the bill would match the goals to boost investment in alternative sources of energy.

"Properly designed, an H-Prize could provide useful feedback," she said. "But I am in no way convinced that we need to spend \$100 million on such a prize."

Biggert also said that neither the president nor Congress would find the money for the proposed prizes without taking funding out of other vital energy research and development programs.

### **Spurring innovation**

Business leaders who testified at the hearing had a different view. They unanimously backed Inglis' bill and praised an award-based system as a tool to lift investments in hydrogen energy.

Prizes "drive research that leads to high-leverage breakthroughs," said Peter Diamandis, chairman of the X-Prize Foundation, a non-profit organization dedicated to fostering innovation. "The return on investment can be huge."

Such a prize helped push Charles Lindbergh to become the first to fly solo across the Atlantic.

In Diamandis' view, prizes attract "ego money," and risk-taking capital put up by corporate sponsors and wealthy individuals.

"These prizes would accomplish this by drawing attention to the importance of the hydrogen revolution," said David Bodde, director of innovation and public policy at International Center for Automotive Research. He also said that such prizes might reduce the gap between research funding and investment funding.

Phillip Baxley, president of Shell Hydrogen, also praised the prizes, saying that they "stimulate innovation across a much broader community than the Department of Energy programs and funding alone can provide."

Shell Hydrogen is a separate business unit established by Shell Inc. ([RDS.A](#)), to pursue new business opportunities in hydrogen fuel and fuel cells.

"The H-Prize will raise the profile of hydrogen on the national stage...on an issue that is important for the economy, the environment and from a national security perspective," Baxley said.

### **Hurdles on the road**

While the hydrogen economy holds out great promise, "it also presents great hurdles," Boehlert said.

And the committee hearing brought up some of them.

David L. Greene, an expert in transportation and energy policy issues at the Oak Ridge Laboratory, drew a gloomy picture for the America's dependence on oil.

According to estimates by the Energy Information Administration, Greene said, oil imports added \$230 billion to the U.S balance of trade deficit in 2005. "By my best estimates, the economic costs of our oil dependence over the past three decades exceed \$3.5 trillion," he added.

For the transportation sector, progress in the development of fuel cells, storage and distribution systems are critical, Greene said. "Widespread success is not certain."

But Shell's Baxley said the test is to bring hydrogen into the lives of consumers. And the high cost associated with storage and transport is one of the many barriers that would make the achievement difficult.

Baxley also pointed out that commercialization of hydrogen will not be achieved without fuel cell vehicle technology and mass production levels.

The economic value of all hydrogen produced is about \$135 billion per year. Globally, about 50 million [metric tons](#) of hydrogen was produced in 2004 and the growth rate is about 10 percent per year, according to public data..

"To put this number into perspective, this amount of hydrogen could power all the family cars in the U.S. if they were fuel cell vehicles," Baxley said.

Within the [United States](#), hydrogen production was about 11 million metric tons.

"The race for global dominance in the hydrogen economy has begun" Baxley said, predicting that hydrogen will be widely used commercially within the next generation.

A hydrogen economy "will not emerge by virtue of technology alone," Baxley said. Technology, economics and policy decisions need to be combined in order for the effort to succeed, he added.

Currently, hydrogen production is almost 50 percent from [natural gas](#), 30 percent from [oil](#), and 18 percent from [coal](#), and the rest from water [electrolysis](#).

Therefore, another hurdle identified by business leaders and experts would be to find the best low-cost raw material from which to produce hydrogen.

### **A multibillion dollar question**

Under Inglis' legislation, the Energy Department would contract with a private foundation or panel that would include experts in the field to establish criteria for the prizes.

Witnesses urged lawmakers to ensure that the government creates an independent and fully transparent award process.

"The multibillion dollar question...is what are the prize rules, who will compete,

and when will it be won," Diamandis said.

Greene pleaded for an independent party to judge and decide the winners of the prize.

"I believe it would be wise to specify in the legislation the independent third party to be responsible for selecting award winner," Greene said.

He also added that a reputable institution such as the National Academies of Science "would make clear that neither politics nor special interests would influence the selection of winners." ■

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