

**United States House of Representatives
Committee on Science**

Legislative Hearing on H.R. 5143, H-Prize Act of 2006
Thursday, April 27, 2006
Washington, DC

**Testimony by
Phillip Baxley, President
Shell Hydrogen LLC**

Good morning Mr. Chairman and members of the committee, thank you for the invitation to testify today. I am Phillip Baxley, President of Shell Hydrogen LLC, with responsibility for Shell's hydrogen business activities in North America.

Shell Hydrogen's global business was set up more than 7 years ago to pursue and develop business opportunities related to hydrogen and fuel cells. Our goal is to bring hydrogen into commercial use for transportation and other related needs. Through existing and planned demonstration projects Shell Hydrogen is bringing hydrogen out of its industrial settings to places where consumers can access it as a fuel for their vehicles.

You are all aware of the energy challenges we face here in the U.S. and around the world. In North America, Shell is a leader in the development of unconventional hydrocarbon resources, like shale oil and tar sands, as well as renewable energies and hydrogen technologies. We remain committed not just to increasing the world's energy supply, but to broadening its portfolio as well. A national energy portfolio that includes significant use of hydrogen fuel and fuel cell applications will make lasting contributions to our future energy needs. Last year, through the passage of the Energy Policy Act, Congress demonstrated a commitment to producing commercial fuel cell vehicles and developing a hydrogen infrastructure. We are pleased to see further congressional support through legislation complementing ongoing activities put in motion by the energy bill.

The goal of providing hydrogen as a fuel on a significant scale requires a coordinated undertaking within all levels of government, the automotive industry, and energy companies. Most of the research and development attention is focused on finding an inexpensive on-board hydrogen storage solution, and I hope the development of a hydrogen prize can supplement the work that is already being done. We must also address the technical and operational challenges through public-private partnerships and identify what is needed to accelerate the commercialization of hydrogen fuel cell technology. In many respects, hydrogen vehicles must be part of our primary focus because it is the vehicles themselves that are furthest from commercial readiness.

From a fuel supply perspective, there has been a hydrogen economy and hydrogen infrastructure in place for decades. Globally, 50 million tons are produced and consumed every year, mainly in our own refineries, for producing clean traditional fuels. 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.

Additionally, most areas of significant population are close to hydrogen production. [Images 1 and 2] Now the test is to bring hydrogen into the everyday lives of consumers in convenient locations.

This can be done and is already being demonstrated, for example, with our Benning Road station here in Washington, D.C. [Image 3] As you may know, President Bush and a number of Members, staff and agency officials have visited the facility – over 1,400 visitors since the November 2004 opening.

The Benning Road station is part of our longer-term goal of establishing a number of large-scale, integrated pre-commercial activities, which we call “Lighthouse Projects”. We are focusing on a limited number of projects -- mainly transportation applications involving hundreds of vehicles and several combined hydrogen and gasoline refueling stations. Because significant numbers of vehicles are required for ‘real world’ operational experience in order to validate network supply and refueling operations, we are focused on the northeast and west coast corridors at this time. Before the end of the year, we plan to have two more stations on-line in New York and Los Angeles.

The Hydrogen Prize Act of 2006

I would like to commend Representative Inglis for his leadership in introducing H.R. 5143. The federal government can have an important role in fostering technological innovation – the creation of the Hydrogen Prize is an important step in that direction.

My remarks will cover the following areas:

1. Leadership opportunities and the significance of visible congressional support.
2. Involvement and innovation across a broader community.
3. Commercialization and the growing global market.

First, the H-Prize will raise the profile of hydrogen on the national stage and demonstrate visible leadership from Congress on an issue that is important for the economy, the environment and from a national security perspective.

A hydrogen economy will not emerge by virtue of technology alone. Any development will be a combination of technology, economics and policy decisions.

The Energy Policy Act helped the hydrogen economy emerge in a larger, more substantial way. A Hydrogen Prize demonstrates further leadership to increase public awareness around hydrogen, thereby working toward a successful evolution of hydrogen commercialization.

Shell sees hydrogen as an important part of our future energy mix. To market hydrogen within the foreseeable future, we working along two channels -- first, to increase public awareness of hydrogen-based projects and further explore retail hydrogen fueling stations, and second, by actively supporting technological development essential for rendering hydrogen accessible to a broader market. We work with partners to promote and support the development of the infrastructure and technical solutions that the world needs because we know we cannot do it alone. On the basis of raising the awareness of hydrogen and promoting it as a stable energy carrier, this legislation will provide an opportunity to address these challenges, as well as allowing for new technical jobs and building new supply chains.

There are several critical hurdles to overcome before hydrogen can reach its full potential in the market. Shell will continue to work together with our partners in the industry and different areas of government to achieve sufficient levels of mass production to drive

down costs while meeting the energy needs of the country. It will be helpful to open up to a broader group through the management of a prize because prize incentives have a place in conquering our emerging technology hurdles.

Secondly, an H-Prize will stimulate involvement and innovation across a much broader community than the Department of Energy programs and funding alone can provide.

The incentives outlined in the H-Prize Act are competitive, but it is imperative that the H-prize is well managed so we do not weaken the existing Department of Energy program budget when appropriating these funds. It is important to expand on the progress being made through the implementation of the energy bill and continue to develop a clear, consistent government policy for hydrogen that the market can thrive in.

One of the strongest points in support of an H-Prize is the ability to stimulate involvement and innovation across a much broader community than is possible even with DOE funding. For example, student competitions, universities, small labs, startup companies, even folks in their garages can participate – which has been a hallmark of American ingenuity and competitiveness in so many other pioneering areas. And perhaps not just in the U.S., but such a prize would likely attract interest and talent from around the world as well.

A hydrogen economy provides benefits through economic growth, job development, investment opportunities, and a sustainable secure energy supply. Additionally, hydrogen can directly address air pollution and provides many pathways to address the reduction and eventual elimination of greenhouse gases. The primary challenges at this time are to further development fuel cell vehicle technology and achieve mass production levels. Commercialization will not be achieved without these two components working with our effective utilization of refueling facilities and supply systems.

The current Department of Energy funding and fuel validation program are extremely important technology development programs. To move research to reality now requires further attention to the bridge that needs to be built in the next ten years from small-scale demonstrations toward commercial operation.

Finally, an H-Prize can only accelerate commercialization and support the growing global market.

The race for global dominance in the hydrogen economy has begun. Shell believes that hydrogen will be widely used commercially within the next generation – in the United States, Western Europe, China and Japan. An H-Prize can play a role in assuring U.S. leadership in the development and deployment of the hydrogen economy by attracting world talents to the U.S.

The benefits of hydrogen as a clean, competitive energy solution can be delivered to millions of people around the world in the next twenty years. Any innovation requires time because of technical issues, public acceptance and practical experience.

It is often said that developing the hydrogen economy will be a marathon, not a sprint. The course will not be completed quickly; we need to prepare for a long commitment. This is an evolution; we cannot switch to the new vehicles or construct a whole new infrastructure of hydrogen filling stations and distribution networks all at once.

As with all energy transitions, this transition will take time and occur in phases. Technological advances and market acceptance are expected to define the phases. In addition, a corresponding education effort in hydrogen safety will ensure public readiness as hydrogen becomes increasingly available.

The use of hydrogen will accelerate over the next 10 to 20 years as the technologies and infrastructure evolve. The market applications are the ultimate prize for many of these participants. The criteria established to award prizes needs to be well understood in order to be valuable in the marketplace. The scope of the prizes awarded through the H-prize Act need to be well defined. This issue is more important than ever and we need to do it right.

Conclusion

Increased use of hydrogen as a fuel provides benefits to energy security, the environment and economic growth. Developing a Hydrogen Prize is attractive from a public policy standpoint because hydrogen can be produced from a wide range of primary energy sources -- finding the most efficient and marketable way to do this is definitely something the government is in the position to promote and lead. The future is in our hands and the obstacles can be overcome if we make the right choices about hydrogen today.

Thank you for the opportunity to appear before the committee today. This concludes my testimony. I would be pleased to answer any questions you may have.

ATTACHMENTS

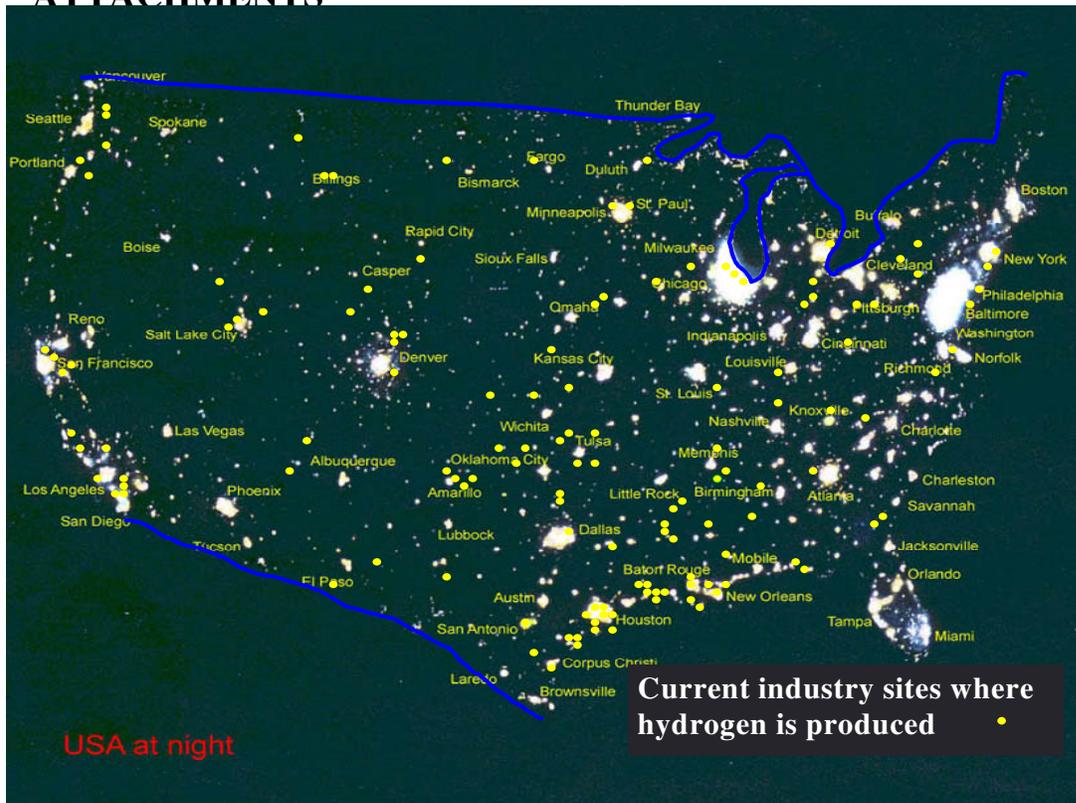


Image 1: Satellite image of the USA at night overlaid with the major areas of hydrogen production facilities.

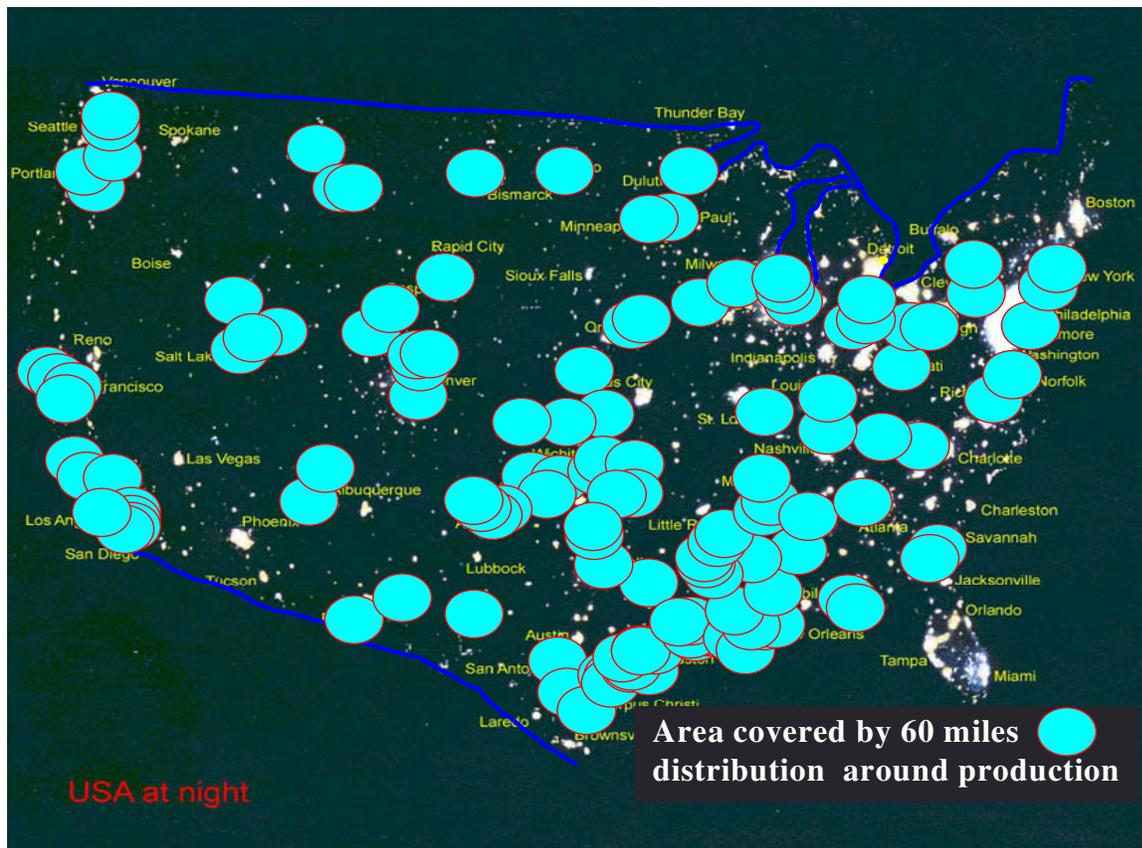


Image 2: Satellite image of the USA at night overlaid with the areas within 60 miles of current production sites.

Benning Road Retail Station

Washington, DC



Image 3: Shell's Benning Road Retail Facility, Washington, D.C.