



March 23, 2010

The Hon. Dr. Stephen Chu
Secretary of Energy
U.S. Department of Energy
1000 Independence Ave. SW
Washington, DC 20585

Dear Mr. Secretary:

Enclosed is the Hydrogen and Fuel Cell Technical Advisory Committee's Annual Report on the State of Hydrogen and Fuel Cell Commercialization and Technical Development. In it we detail the important progress the hydrogen and fuel cell industry has achieved in 2009 on the path to commercialization. Fuel cells certainly are emerging as a success story for your Department. DOE research and investment has helped developers reduce cost, improve performance, and enter markets. More than 30,000 fuel cell units of all kinds are deployed worldwide, with rapid growth projected.

Continuing research is opening doors for lower system costs, better fuel storage and cheaper delivery. Analysis suggests hydrogen is among the credible options for supporting solar and wind power in a greener grid. Fuel cells support all of President Obama's strategic priorities for energy.

Perhaps most significant, the international effort energized by DOE's leadership is producing results in Europe and Asia. Germany, Korea and Japan in particular have announced ambitious commercialization programs. India aims to power its burgeoning telecommunications industry with fuel cells, and expects domestic jobs to be part of the deal. Japan's auto and energy industries have unveiled a plan to deploy two million fuel cell vehicles by 2025. Leading German auto and oil companies have committed to a similar plan. This international success is heartening, but threatens the competitive position of the U.S.

Dozens of countries tracked US leadership and US progress, and emulated US research. The US-inspired International Partnership for Hydrogen and Fuel Cells in the Economy (IPHE) has 18 members and interest from others. DOE technology targets and commercialization time tables are the international benchmarks of success. The US now finds itself, in fact, competing with these former followers for scientific, technological and marketplace leadership -- and competing for the jobs that accompany commercial deployment.

DOE is a partner in this success. DOE-led research in materials and catalysts reduced the cost of components for early commercial systems. Hydrogen production costs are already at DOE target levels and delivery costs declined significantly in 2009, although much work remains on storage and delivery and on renewable hydrogen generation. Preliminary research has identified storage materials with the potential to achieve DOE's performance goals, suggesting that further inquiry may well lead to advanced storage systems for second or third generation fuel cell vehicles.

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DOE now projects that the volume production cost of fuel cell passenger vehicle engines based on 2009 technology is already within the range of high-end conventional engines. This suggests fuel cell vehicles can be cost competitive within a few years, if vigorous federal and private research continues.

Researchers and governments are supporting a variety of technologies to reduce oil use and greenhouse gas emissions. A look at these efforts reinforces a key finding from two recent National Academies studies conducted for the DOE: a portfolio approach to research, development, demonstration and market transition is essential to meeting the nation's energy and environmental goals.

The commitment to fuel cells as part of a portfolio approach has been reaffirmed around the world. In Germany, a public-private partnership of fuel providers, auto manufacturers and the government adopted a program to double the number of hydrogen fueling stations in Germany while developing a business plan for 500 to 1,000 stations, to meet the auto industry's commercialization time table. In Japan the government is reviewing a proposal by auto and oil companies to deploy two million vehicles and 1,000 fueling stations between 2015 and 2025.

The Department's position has an impact far beyond the motor vehicle industry. Developers of fuel cell power generation systems, for example, are finding lucrative markets outside the US but are under pressure to include manufacturing rights as part of the deal. The Korean government, as a case in point, has announced a plan to support the installation of two million residential fuel cell systems by 2020. Korea's goal is to supply 20% of the world's demand for fuel cells, creating 560,000 sector jobs for Korea. With US capital markets largely focused elsewhere, US fuel cell companies are looking to Europe, Asia and the Middle East for financial support and market opportunity.

Retaining a strong knowledge base and a successful manufacturing base in the US will be a challenge; yet it will be far less costly to retain our current lead than to attempt to buy it back in 10 or 20 years, as we are learning in the case of batteries, wind and solar power.

Recommendations

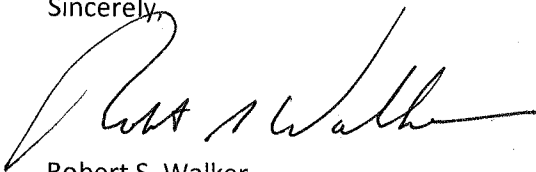
As you work with the Appropriations Committees to develop a final budget for your Department, we hope you will make clear your support for a portfolio approach to energy technology development that includes a continued aggressive program in fuel cells and hydrogen. We would like to offer these concrete recommendations for your consideration:

1. Seek increased communication and regular exchange among programs within the office of Energy Efficiency and Renewable Energy, and with other DOE offices that have parallel or compatible research efforts. In smart grid, renewable generation, large scale energy storage, sequestration or low carbon fuels, hydrogen and fuel cells have an important role to play. Frequent communication will lead to better planning and better use of resources.
2. Seek increased collaboration with the Department of Defense, which has a strong interest in fuel cells for the capability they bring to the battlefield and the economy and the flexibility they bring to the domestic base structure.

3. Conduct an evaluation of US fuel cell manufacturing capability. Rumored bottlenecks in US production would retard commercialization and also increase the risk that new plants and equipment will be built outside the US.
4. Consider large, high-visibility demonstrations along the lines of Japan's Hydrogen Town in developing your FY 2012 budget. Activities in the States, such as California's vehicle deployment program, provide partnership opportunities that would leverage federal dollars.
5. Consider a large scale project to demonstrate the production and use of hydrogen in support of solar or wind power. A 2009 National Renewable Energy Laboratory study suggests hydrogen can be a significant energy storage option as the electric power grid accommodates an increasing amount of intermittent generation.
6. Most important, the use of your office to reaffirm the Department's continued interest in fuel cells as a part of the US energy portfolio would be of great value. This relatively simple but critical act of leadership will clear the air of doubts about US support for fuel cells in the long term, materially improve the prospects for US companies, and hasten the day when the nation harvests the fruits of the DOE research investment: greater energy security and less reliance on foreign oil, a greener, smarter grid and jobs for the American workers who will build our energy future. We are happy to suggest venues in the US and internationally for such a discussion.

Thank you for your leadership in the energy arena. We hope that HTAC's continued focus on hydrogen and fuel cells is of value to your commitment to addressing the nation's energy needs in the years ahead.

Sincerely,

A handwritten signature in black ink, appearing to read "Robert S. Walker". The signature is fluid and cursive, with a large initial "R" and "W".

Robert S. Walker
Chairman

Enclosures