

**Testimony to the House Appropriations Subcommittee on Interior
From the US Fuel Cell Council
By George Earle, President of the US Fuel Cell Council
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Chairman Taylor, Ranking Member Dicks and honorable members of the committee. The fuel cell industry is requesting that this subcommittee support an increase of \$20 million over President Bush's request of \$77.7 million for the Energy Conservation Budget within the Department of Energy (DOE) as well as a restoration of funds to Fiscal Year 2004 levels for the Office of Fossil Energy.

On behalf of the 115 companies from across the country that we represent, the US Fuel Cell Council would first like to thank you for the opportunity to share our thoughts with you. Also, thank you for your support of our industry last year. The increases you were able to obtain for the Fossil Energy Office program, as well as your ability to hold onto much of the President's increased request for the program in the Energy Efficiency and Renewable Energy Office, was greatly appreciated.

Mr. Chairman, the Fuel Cell Industry has a proud record of working hand-in-hand with our government counterparts. In his 2003 State of the Union Address, President Bush committed our nation to building a hydrogen economy as a way to decrease our dependence on foreign oil, improve the environment and obtain greater energy independence. Since the President made that commitment, our technologies have received favorable attention by Congress, the Administration, as well as the public.

As you know, fuel cells are devices that convert chemical energy in fuel to electricity and heat without combustion. Fuel cells transform the way power is generated and delivered, because they are:

- Secure, reliable and provide high-quality power at the point of demand, with some systems able to provide "free" thermal energy as well as electric energy;
- Fuel-efficient, using far less fuel to generate power than needed by comparable technologies; and
- Clean, emitting virtually no pollution during the power generation process.

As an industry, we are happy to report that we are making significant strides in carrying out the President's mission, and we are committed to ensuring a continued and aggressive competitive Research and Development program within the Department of Energy to advance America's transition to a hydrogen economy.

Mr. Chairman, a committee of the National Academies of Science (NAS) recently examined the Department of Energy's hydrogen and fuel cell vehicle program and concluded that a transition to hydrogen "could fundamentally transform the U.S. energy system, creating opportunities to increase energy security . . . while reducing environmental impacts."

The National Academy study also recognized the enormous long-term potential of the hydrogen economy, and recommended expanding research in fuel cell cost reduction and durability, and in hydrogen storage, delivery and safety. The report, "The Hydrogen Economy: Opportunities,

Costs, Barriers, and R&D Needs” stated it was “impressed by how well the hydrogen program has progressed.”

Again, the US Fuel Cell Council wants to build on this momentum. We encourage this committee to increase funding from the budget request by \$20 million to bring total fuel cell funding in the Energy Conservation Budget to \$97.7 million. This compares with a \$65.2 million level in 2004. These funds support competitive solicitations for research and development of components, reformers, stacks and fuel cells systems in portable, stationary, transportation and micro applications. We urge that the increase be used to fund industry efforts to increase reliability, decrease costs and move technology forward. The industry is also pleased to see an emphasis on codes and standards, and we are actively pursuing standards for telecommunications applications as well as equipment separation distance standards.

In general, fuel cells and surrounding systems developed within the Conservation account are Proton Exchange Membrane (PEM) fuel cells. PEM is a highly versatile technology. We encourage DOE to fund the full range of applications: portable and micro fuel cell systems, stationary fuel cell systems, and transportation related fuel cell systems. We are, additionally encouraged by the consistent funding request for the Freedom Car initiative.

Our industry is also developing larger scale fuel cells for stationary applications under the Office of Fossil Energy (FE), and we are concerned about the alarming 68% decrease in the FE Distributed Generation Systems Budget funding request. For FY05, all but one funding line has been eliminated and the remaining Solid State Energy Conversion Alliance (SECA) funding was reduced to a mere \$23 million. We urge the Subcommittee to provide at least \$50 million for the all-important work under SECA and to restore the level for Fuel Cell funding to the FY 2004 appropriated amount of \$71 million.

Allow me to briefly review some of the programs that fall under your jurisdiction within the Office of Energy Efficiency and Renewable Energy and the Fossil Energy Office. They include: Transportation Systems; Distributed Energy Systems; Stack Component R&D; Fuel Processor R&D; Technology Validation; Technical/Program Management Support; and the Solid State Energy Conversion Alliance (SECA).

Transportation Systems

Transportation Systems R&D addresses key barriers to fuel cell systems for transportation applications. These barriers include attaining low cost and high-durability technical targets. Due to the strong level of industry development of complete systems, this program does not develop integrated systems. Rather, it seeks component technology critical to system integration.

Distributed Energy Systems

Distributed Energy Systems develops high-efficiency PEM fuel cell systems as an alternative power source to grid-based electricity for buildings and other stationary applications. The program supports the Hydrogen Fuel Cell and Infrastructure Technology (HFCIT) program by overcoming barriers to stationary fuel cell systems that will enable the widespread use of fuel cells in distributed energy applications.

Stack Component R&D

Stack Component R&D focuses on critical technical hurdles for PEM fuel cell stack components for both stationary and transportation applications. Hurdles include cost, durability, efficiency and overall performance. The success of these research and development efforts will assist the industry in making their decision regarding commercialization of fuel cells.

Fuel Processor R&D

The Fuel Processor R&D program helps develop fuel processors for transportation, stationary, auxiliary and portable power generation. Fuel processing technology will enable fuel cells to be fuel-flexible – capable of reforming gasoline, methanol, ethanol, natural gas and propane into hydrogen. Due to the current lack of hydrogen infrastructure, this technology will enable fuel cells, which operate more efficiently and in an environmentally friendly manner, to be used until hydrogen becomes more readily available.

Technology Validation

Technology Validation is coordinated with other government programs and is a 50/50 cost shared effort between the government and industry for automobile manufactures, energy companies, suppliers, universities and states. The effort will validate components under real-world conditions, and assist industry by providing safety, maintenance and fueling data. Technology validation will also be critical to help industry make commercialization decisions by 2015.

Technical/Program Management Support

The Technical/Program Management program provides the analysis framework and technical support to meet the DOE's planning process. It also keeps the research and development agenda on target to meet and exceed goals.

SECA

The Solid State Energy Conversion Alliance, under DOE's Office of Fossil Energy, works in conjunction with the National Energy Technology Laboratory and the Pacific Northwest National Laboratory to develop commercial, cost-effective solid oxide fuel cell prototypes for diverse applications. The solid-oxide fuel cells will help mitigate environmental concerns associated with current methods of generating electricity from fossil fuels.

The fuel cell industry is, as you know, emerging, and in the short term, is dependent on industry-government collaboration, particularly for research, development and demonstrations.

Mr. Chairman, allow me to take a moment to say a word about demonstrations, which have received a lot of negative attention lately. In our opinion, recent comments mischaracterize demonstrations as premature and distractive to developing fuel cell technology. Our council feels that a structured and comprehensive demonstration program is particularly important for the development of our industry. Demonstrations serve as extensions of DOE's research, designed to obtain performance and durability data in real world environments. In fact, the chairman of

the NAS committee has recently characterized research, development and demonstration as a “continuum” in the commercialization process.

Let me conclude by saying that America is poised to lead the world in fuel cell and hydrogen technology; however, other countries, particularly Japan, continue to gain on our progress. That said, if America expects to be the dominant producer and user of fuel cells, we must continue to make commitments that will move us toward President Bush’s vision of a sustainable hydrogen economy.

To that aim, the 115 members of the US Fuel Cell Council encourage robust funding for all of the fuel cell activities under your jurisdiction.

Thank you for considering our requests, and we thank you for your steadfast support over the years.