

## Hearing Proposal Plug-in Hybrids

*"We must also change how we power our automobiles. We will increase our research in better batteries for hybrid and electric cars.....By applying the talent and technology of America, this country can dramatically improve our environment, move beyond a petroleum-based economy, and make our dependence on Middle Eastern oil a thing of the past."*

President George W. Bush, State of the Union Address, January 31, 2006

*"And one of the really interesting opportunities available for the American consumer will be the ability to buy a plug-in hybrid vehicle that will be able to drive up to 40 miles on electricity. Seems to make sense to me. If we're trying to get us off gasoline, with crude oil as the main -- as its main feedstock, then why wouldn't we explore ways to be able to have vehicles that use less gasoline? And one way to do so is to use electricity to power vehicles."*

President George W. Bush, Speech before the Renewable Fuels Association, April 25, 2006

Background: Given rising gasoline prices and U.S. dependence on foreign sources of oil, the call for technologies that can help reduce the nation's addiction to oil has intensified. Plug-in hybrid vehicles offer one alternative that could help to reduce U.S. demand for oil. By shifting the energy supply for vehicles from the pump to the grid, plug-in hybrids could help address energy, environmental, and other concerns. There are, however, several obstacles to clear before this technology reaches the marketplace, including the need to address cost-competitiveness and the performance of the battery technology.

### Overarching questions:

1. How large a contribution to reducing oil consumption could plug-in hybrid technology make?
2. What is the current state of plug-in hybrid technology?
3. What major research, development, and demonstration work remains on plug-in hybrid technologies? How should this work be prioritized?
4. What are the largest obstacles facing the widespread commercialization of plug-in hybrid vehicles and what steps need to be taken to address these hurdles? (batteries, infrastructure, consumer preference, automotive inertia, cost-competitiveness, etc.)
5. How does the federal government support the development of plug-in hybrid technologies? What can the federal government do to accelerate the development and deployment of plug-in hybrid vehicles?

### Potential Witnesses:

1. Mark Duvall (EPRI) – knowledge of plug-in technology and economics from the electricity industry's perspective. He currently heads up EPRI's Grid-Connected Hybrid Electric Vehicle Working Group (HEVWG) and is EPRI's technical lead for the DaimlerChrysler-EPRI Plug-in Hybrid Electric Sprinter Van Program.

2. Andy Frank or Dan Sperling (UC Davis) – the witness in this slot would serve as the technical expert on plug-in hybrid technology. There are two choices: Dr. Frank or Dr. Sperling.

Dr. Frank has a great deal of knowledge in this area, having built several plug-in hybrids, but may be too much of an advocate. Dr. Frank is a leader in the plug-in hybrid vehicle concept. He has over 120 publications and over 25 patents on this technology. He has been part of the Mechanical and Aeronautical Engineering Department at The University of California –Davis since 1985 and began working with students to conduct research, development and demonstration efforts on more fuel-efficient vehicles. Through this work, he has developed award-winning fuel-efficient vehicles capable of running on gasoline and batteries.

Dr. Sperling has knowledge of plug-ins, although not to the same degree as Dr. Frank and, unlike Dr. Frank, Dr. Sperling believes that there still many hurdles to clear before plug-ins can become mainstream. Dr. Sperling is a Professor of Transportation Engineering and Environmental Science and Policy, and founding Director of the Institute of Transportation Studies at the University of California, Davis. He has been a member of several National Research Council committees on vehicle technology and fuels, has authored or co-authored a great deal of books and papers on these topics, and regularly consults with and advises many major energy and automotive companies and government agencies in the US and abroad.

3. Vinod Khosla (Khosla Ventures) – could provide the venture community/entrepreneurial perspective on nascent technologies and discuss how to ensure a smooth transition of these technologies to the marketplace. He is one of Fortune's 500 most wealthy individuals in the world and became so through a variety of information technology start-up companies, including Sun Microsystems, and various other venture investment. More recently, he has developed an interest in investing in social enterprises as well as a passion for alternative energy, petroleum independence, and the environment.
4. Dan Santini (Argonne National Laboratory) – has ability to comment on both technical and economic aspects of transportation technologies. He is the Chair of the Alternative Fuels Committee of the NAS's Transportation Research Board. As a researcher, from 1983 to the present, Dr. Santini has published several analyses of economic problems and transport-sector behavior associated with making a transition from one transportation fuel and/or system to another. Dr. Santini's research emphasizes the interplay of fuel price shocks, environmental and safety regulation, transportation technology adaptation, and economic growth.
5. Steve Zimmerman or Dominique Portmann (DaimlerChrysler) – could provide the automobile sector's perspective on plug-in hybrids. Specifically, it would be helpful to have this witness comment on the objectives and expected results of the plug-in hybrid Sprinter program and other the market for plug-in hybrid vehicles more broadly.
6. Frank Gaffney (Center for Security Policy) – knowledge of energy security threats to U.S. and could address how plug-ins could play a role in addressing U.S. oil addiction. Currently, he is the President of the Center for Security Policy. Mr. Gaffney formerly acted as the Assistant Secretary of Defense for International Security Policy during the Reagan Administration, following four years of service as the Deputy Assistant Secretary of Defense for Nuclear Forces and Arms Control Policy. Previously, he was a professional staff member on the Senate Armed Services Committee under the chairmanship of the late Senator John Tower, and a national security legislative aide to the late Senator Henry M. Jackson.