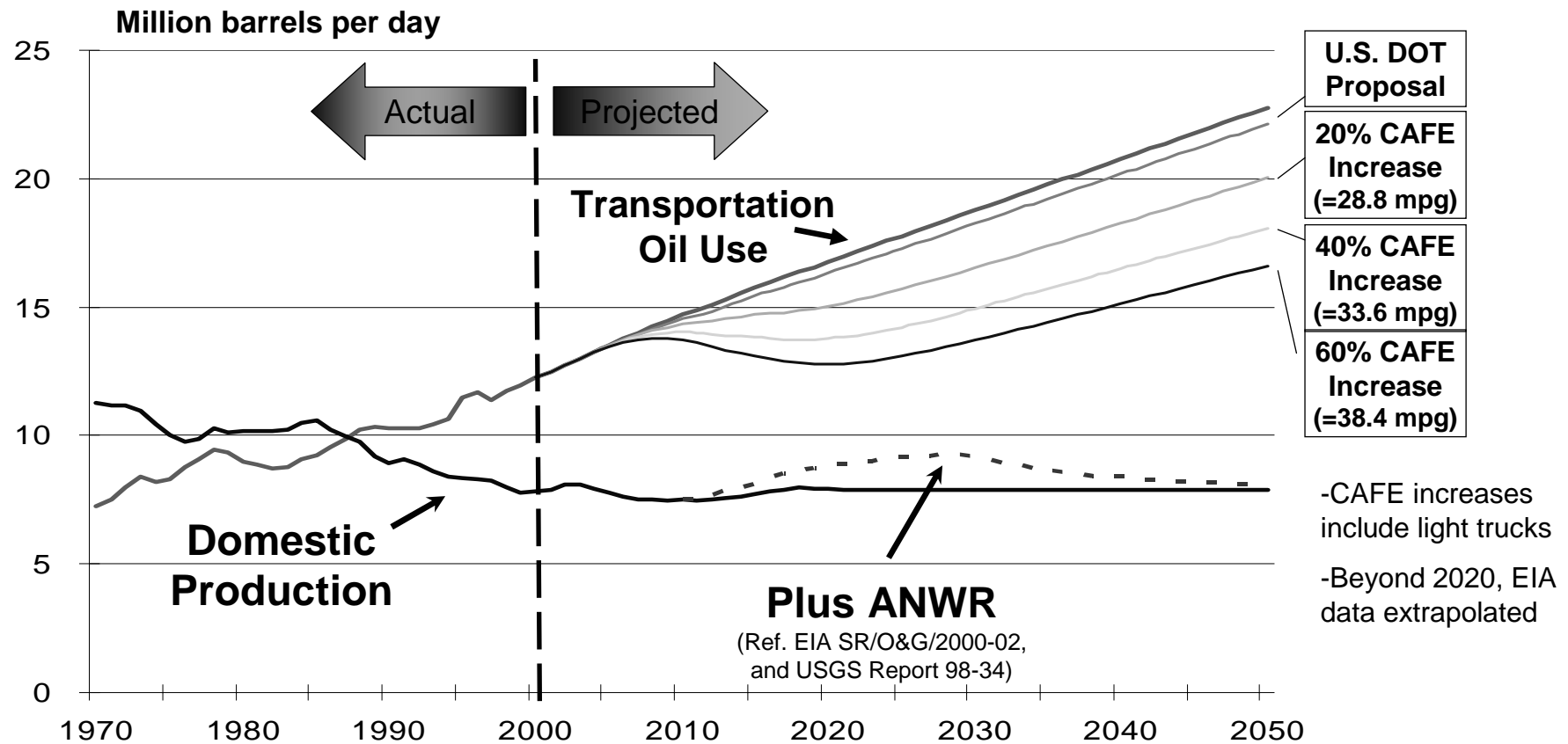


U.S. Hydrogen Initiatives



U.S. Department of Energy

A Bold New Approach to the Energy Sector is Required



Even an *immediate* 60 percent increase in CAFE standards *and* new production from a 10 billion barrel (recoverable) oil field in ANWR will not close the gap between transportation demand and domestic production.

President Bush Launches the Hydrogen Fuel Initiative



"Tonight I am proposing \$1.2 billion in research funding

"With a new national commitment, our scientists and engineers will overcome obstacles to taking these cars from laboratory to showroom so that the first car driven by a child born today could be powered by hydrogen, and pollution-free.

President George W. Bush
2003 State of the Union Address
January 28, 2003



President's Hydrogen Fuel Initiative Complements FreedomCAR

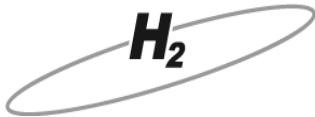
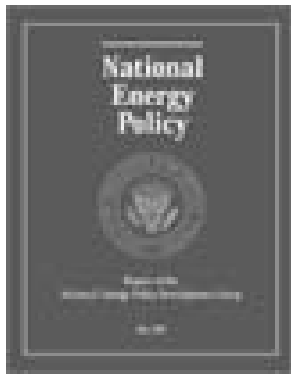


On January 9, 2002, Energy Secretary Abraham announced the FreedomCAR Partnership

FreedomCAR (Cooperative Automotive Research) is a partnership between DOE and the U.S. Council for Automotive Research, a cooperative endeavor among DaimlerChrysler, Ford, and GM to conduct pre-competitive, high-risk, high-payoff research into advanced automotive technologies.

By catalyzing the simultaneous development of both the hydrogen-fueled vehicles through FreedomCAR, and the necessary hydrogen production and refueling infrastructure through the President's Hydrogen Initiative, government leadership will help advance commercialization of hydrogen fuel cell vehicles and infrastructure by 15 years, from approximately 2030 to 2015.

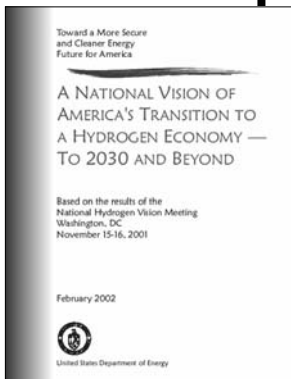
FreedomCAR and Hydrogen Fuel Initiative Timeline



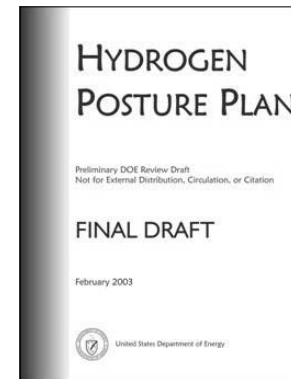
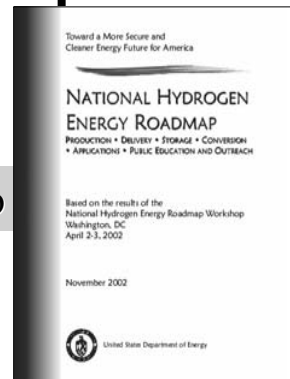
The President's Hydrogen Initiative



May '01 November '01 January '02 November '02 January '03 February '03 November '03



Hydrogen Vision and Roadmap



**IPHE
Ministerial**

IPHE Vision



“The vision of the International Partnership for the Hydrogen Economy is that a participating country’s consumers will have the practical option of purchasing a competitively priced hydrogen power vehicle, and be able to refuel it near their homes and places of work, by 2020.”



**Secretary of Energy Spencer Abraham,
April 28, 2003**



Partnership Goal

Efficiently organize, evaluate and coordinate multinational research, development and deployment programs that advance the transition to a global hydrogen economy.





India's Hydrogen Program

India is developing a hydrogen roadmap that will identify pathways forward for its transportation and electricity sectors.





A Successful Partnership will:

- Bring together the world's best intellectual skills and talents to solve difficult problems;
- Develop interoperable technology standards;
- Develop policy and technical guidance while leveraging resources to advance hydrogen and fuel cell technology development and deployment;
- Foster large-scale, long-term public-private cooperation to advance hydrogen and fuel cell technology and infrastructure development;
- Address emerging technical, financial and policy issues and opportunities.

IPHE Terms of Reference



- 1. IPHE Terms of Reference (TOR) builds on the success of the Carbon Sequestration Leadership Forum**
- 2. TOR is a non-binding agreement that is the basis for IPHE operations**
- 3. Draft TOR is currently being reviewed.**



IPHE Ministerial

November 19, 2003

- Public/Private Dialogue and Technology Exposition

November 20, 2003

- Secretary Abraham delivers keynote address
- Statements by partner country Ministers
- IPHE signing ceremony

November 21, 2003

- IPHE Committee meetings