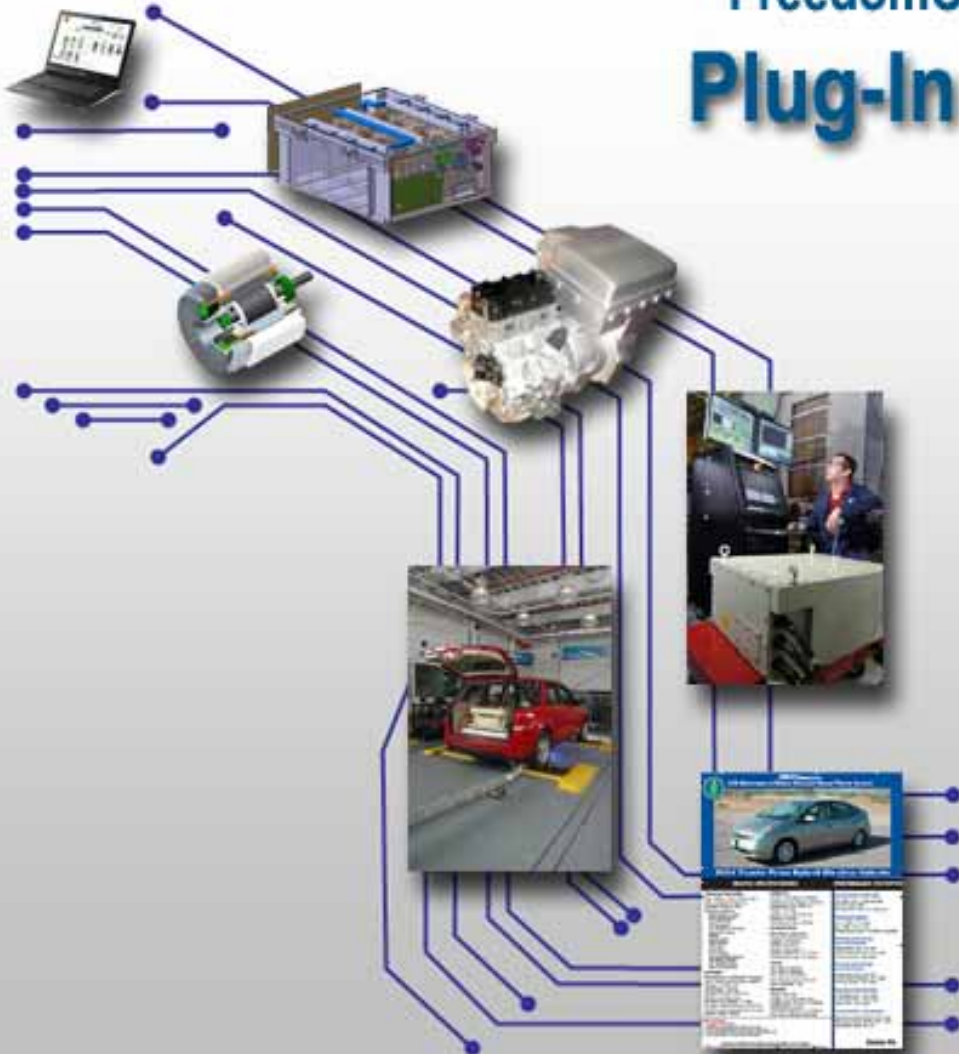




U.S. Department of Energy Energy Efficiency and Renewable Energy

Bringing you a prosperous future where energy
is clean, abundant, reliable, and affordable

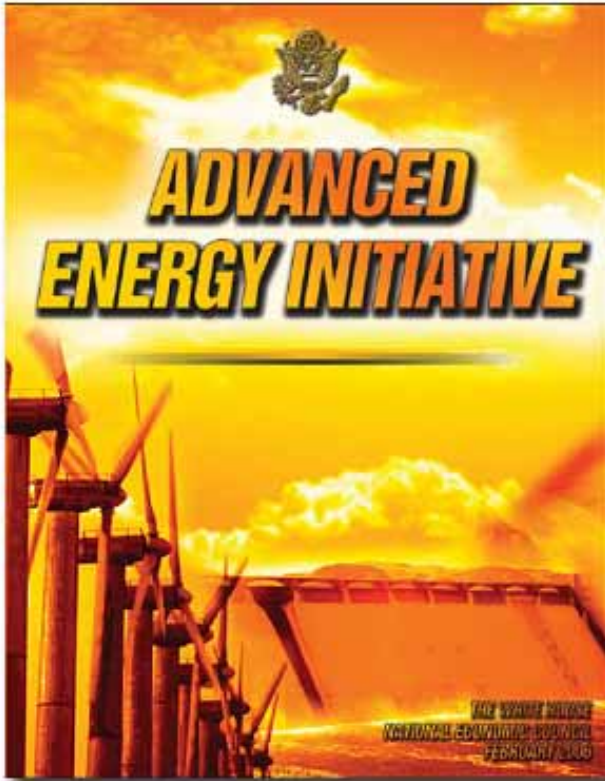
FreedomCAR and Vehicle Technologies Program Plug-In Hybrid Electric Vehicle R&D Activity



Ed Wall

FCVT Program Manager
US Department of Energy
PHEV Stakeholders Meeting
June 13, 2007





“... electric vehicle for the majority of driving that takes place within 40 miles of home.”

- Advanced Energy Initiative

“A ‘plug-in’ hybrid can run either on electricity or on gasoline and can be plugged into the wall at night to recharge its batteries. These vehicles will enable drivers to **meet most of their urban commuting needs with virtually no gasoline use.**”

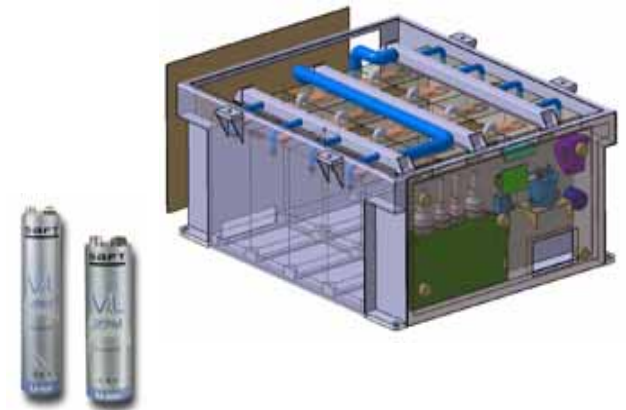
- White House press release
2006 State of the Union

“We need to press on with **battery research for plug-in and hybrid vehicles**”.

- President Bush
2007 State of the Union



PHEVs can substantially improve fuel economy, but cost is the primary impediment and battery technology is a potential show stopper for production.



Electric power generation efficiency and the environmental impact of automobiles can be improved by shifting to electricity from gasoline

- Off-peak power can handle a large number of PHEVs.



- Fuel economy, rather than all-electric range (AER) is the key vehicle metric for the mass market; all other vehicle aspects must be competitive.
 - An AER requirement could drive cost up and decrease the likelihood of production.
- The Federal government is expected to set policy, support pre-competitive research, act as a trusted source of information and minimize market barriers.





- PHEV components presently add \$15,000-30,000 to marginally cost-competitive HEVs
- PHEV conversions are not capable of full-performance in all-electric mode and do not meet the 40 mile electric range goal
- Battery life and reliability with a PHEV duty cycle are unknown
- **PHEVs must be sold in volume to substantially impact petroleum consumption**



- Commit resources at the national laboratories as well as funding technology developers/suppliers
- Collaborate with industry partners and universities to insure appropriate development and long-term viability of the technology
- Continue interactions with stakeholders
 - Considering discussion meeting at EVS-22



- NETL has issued, on behalf of DOE EERE, a Notice of Intent to issue a Funding Opportunity Announcement entitled “Plug-In Hybrid Electric Vehicle (PHEV) Demonstration and Validation”
- DOE is looking for input from stakeholders to help finalize plans for a PHEV Demo.
- Envision fleets of production-intent PHEVs that will be placed in geographically dispersed regions of the country to accumulate mileage, generate performance data, inform future research, and educate potential consumers.
- DOE plans to issue the Funding Opportunity Announcement the later part of CY 2007.
- Notice posted on DOE’s Industry Interactive Procurement Systems (IIPS) or “e-center” (<https://e-center.doe.gov>).



	FY 2006 Budget Appro. (\$ Millions)			FY 2007 Budget Appro. (\$ Millions)			FY 2008 Budget Request (\$ Millions)		
	HEV	PHEV	Total	HEV	PHEV	Total	HEV	PHEV	Total
Energy Storage R&D	23.1	1.4	24.5	23.5	17.6	41.1	23.6	18.2	41.8
Adv. Power Elec. & Motors	12.9	0	12.9	11.7	2.0	13.7	11.7	3.9	15.6
Vehicle & Sys. Sim. & Testing	8.8	0	8.8	9.7	4.4	14.1	11.7	5.4	17.1
Demonstrations/Utility	0	0	0.0	0.0	4.0	4.0	0.0	0.0	0.0
Total	44.8	1.4	46.2	44.9	28.0	72.9	47.0	27.5	74.5