



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

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

FreedomCAR & Vehicle Technologies Program

Overview of the Heavy Vehicle Materials R&D

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Heavy Vehicle Materials R&D Merit Review
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FCVT Program Mission

*To develop more energy efficient and environmentally friendly highway
transportation technologies that enable America to use less petroleum.*

--EERE Strategic Plan, October 2002--

Research, Development and Demonstration in Five Key Technology Areas



DOE/EERE
 FreedomCAR and
 Vehicle Technologies



DOD/Army
 TACOM NAC
 Military Vehicle
 R&D

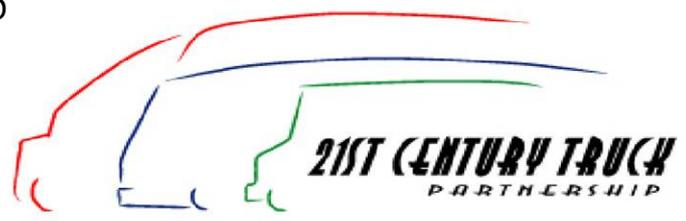


DOT / RSPA
 Intelligent Vehicle and
 Highway Safety R&D



EPA
 Vehicle Emissions
 Regulations

-  Engine Systems
-  Heavy-Duty Hybrid
-  Parasitic Losses
-  Idle Reduction
-  Safety





High Strength Weight Reduction Materials

- ❑ By 2012, reduce the weight of an unloaded tractor-trailer combination from the current 23,000 lbs. (2003) to 18,000 lbs., a Class 7/8 weight reduction of 22 percent.
- ❑ By 2012, enable reductions of 10 to 33 percent in the weight of Class 3 – 7 trucks (e.g., delivery vans, transit buses, vocational vehicles), depending on performance requirements and duty cycles.

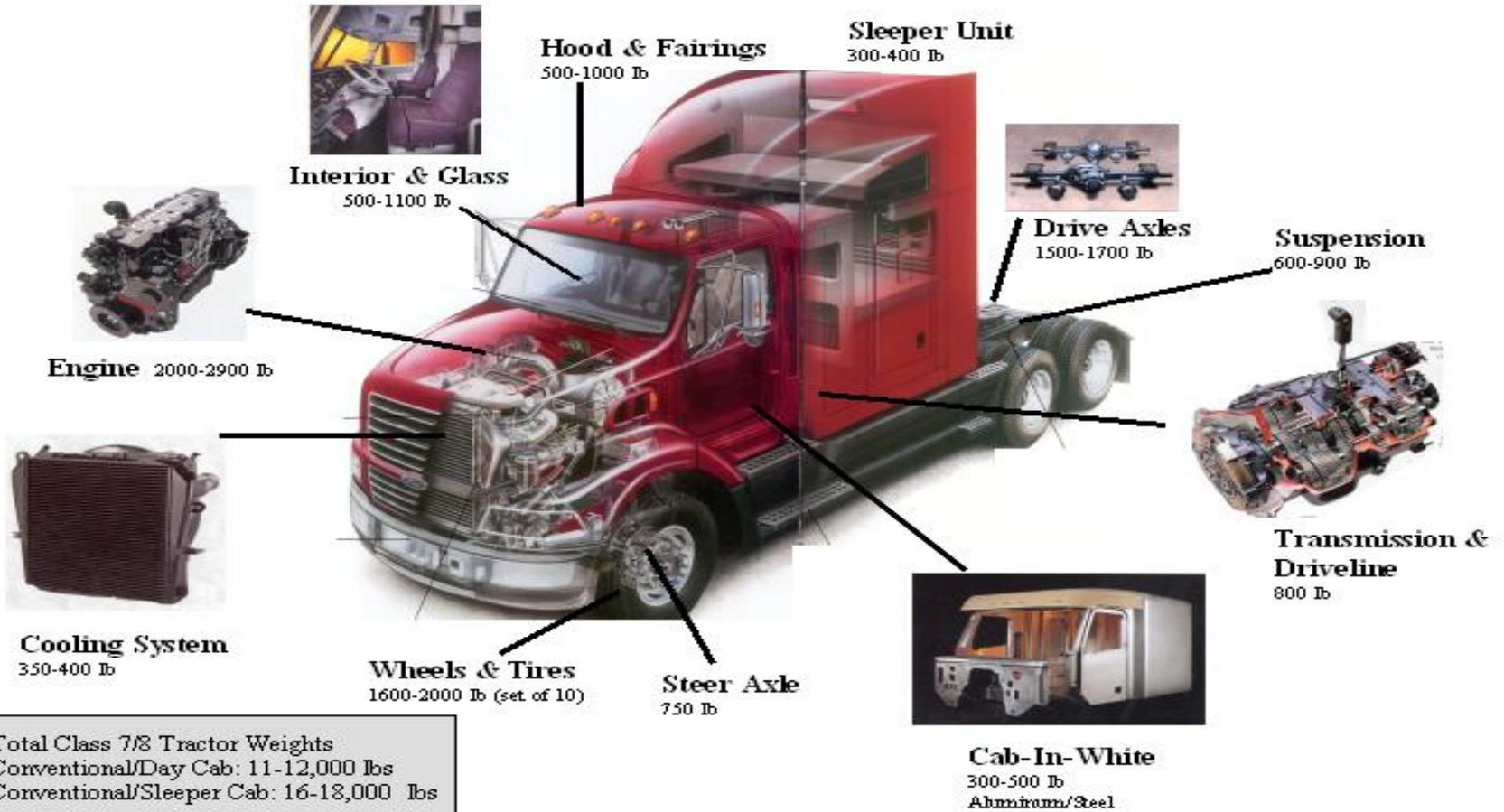
Heavy Vehicle Propulsion Materials

- ❑ By 2012, develop the supporting materials technology required to enable production ready prototype heavy duty-engine efficiency of 55 percent while meeting prevailing EPA emissions standards.



Heavy Vehicle Weight Breakdown

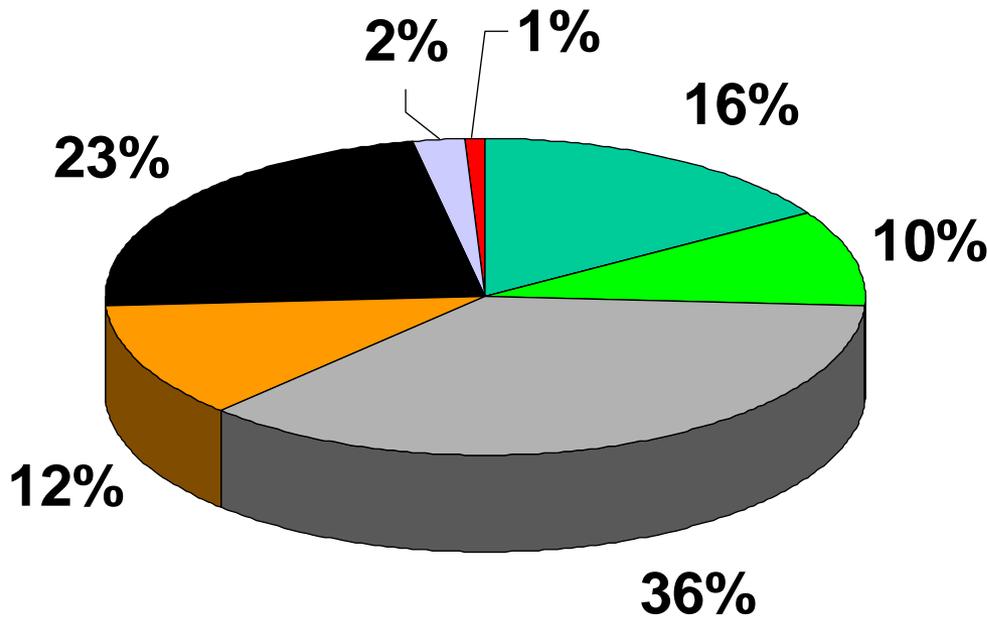
assembly weights for typical Class 7/8 tractor





Heavy Vehicle Materials R&D Budget by Activities

	FY 2004	FY 2005	FY 2006
	Appropriations		Request
<i>Heavy Vehicle Materials Technology</i>	14.250	12.549	12.725
Heavy Vehicle Propulsion Materials	5.633	4.858	4.926
High Strength Weight Reduction Materials	8.617	7.691	7.799



- Vehicle Systems
- Hybrid & Electric Propulsion
- Advanced Combustion R&D
- Fuels Technology
- Materials Technology
- Tech/Management Support
- Biennial Peer Review

FY 2006 21CT Total = \$55.9M



NAS Recommendation to FreedomCAR and Fuels Partnership

“Because internal combustion engines will be the automotive power plant for the next several decades, reducing fuel consumption and emissions of these engines is critically important. DOE needs to look at novel emission reduction and control technologies, and cooperation with the energy companies in research programs aimed at these technologies will increase the likelihood of finding solutions using hydrocarbon-based or alternative liquid fuels.”



President Bush Signs Energy Bill Into Law

The President very clearly stated that... “the bill makes an unprecedented commitment to energy conservation and efficiency... It authorizes new funding for research into cutting-edge technologies that will help us do more with less energy...

... also will lead to a greater diversity of fuels for cars and trucks...”



President Bush is flanked by New Mexico officials after signing the bill.

(Source: <http://www.cnn.com/2005/POLITICS/08/08/bush.ap/>)



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Energy Secretary Bodman





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To Eternity and Beyond...

