2008 DOE Annual Merit Review
Advanced Combustion Engines and Fuels
R&D/Technology Integration
Plenary Session Overview

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U.S. Department of Energy
Vehicle Technologies Program
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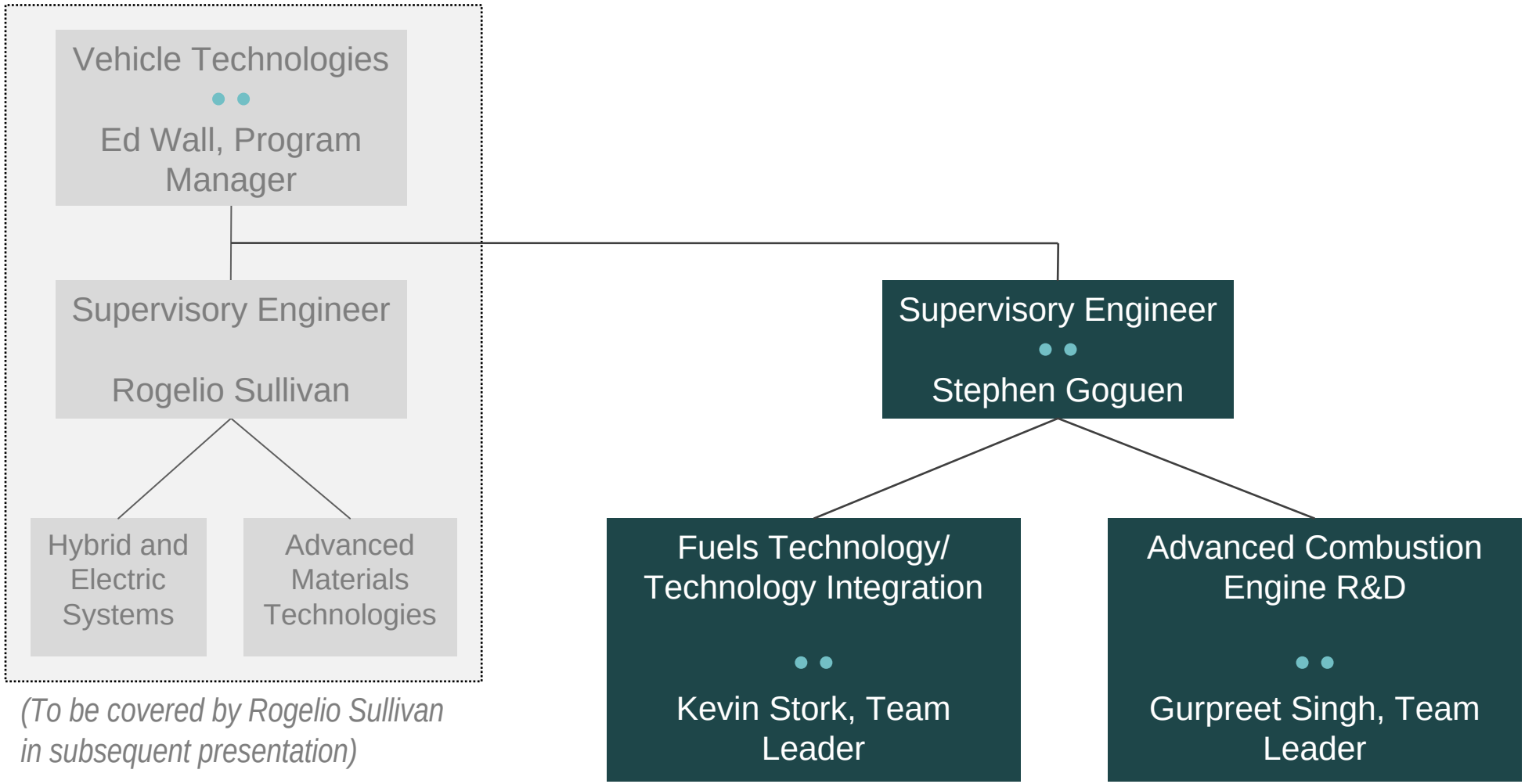
Program Structure



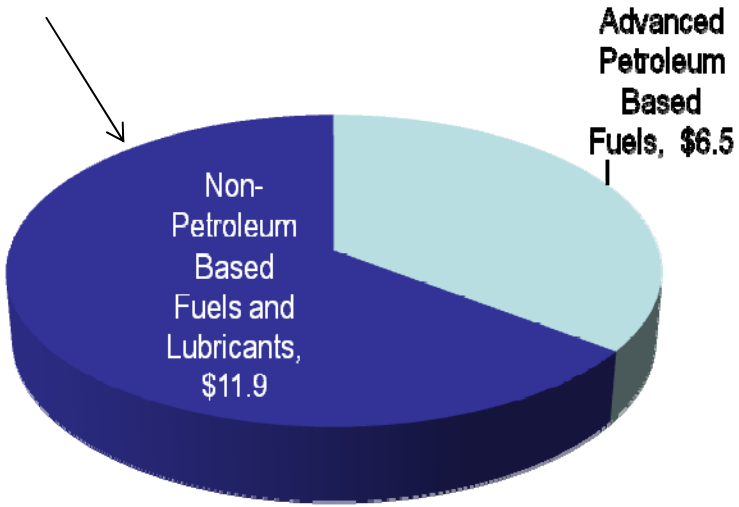
(To be covered by Rogelio Sullivan in subsequent presentation)

Technology Overview

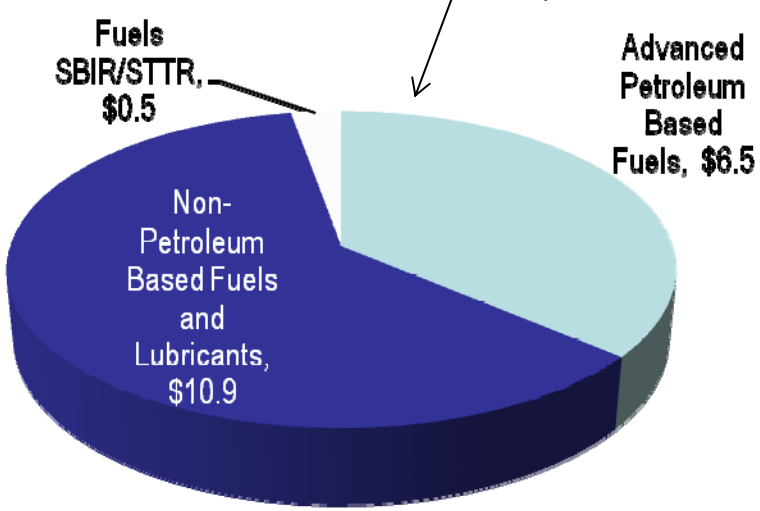
- Advanced combustion engines
  - Internal combustion engines likely to power transportation for many years
  - Increased efficiency is of great consumer interest
  - Advanced light-duty diesel vehicles on the horizon
  - Increased freight transportation efficiency is a great need (versus fuel efficiency impacts from 2007-2010 emission regulations)
- Fuels technology/technology integration
  - Petroleum alternatives being explored (renewable diesel, ethanol blends, other biofuels)
  - New energy legislation increases this focus (EISA, renewable fuel standards)
  - Continued high interest in deployment activities at the state and local level (i.e., Clean Cities)

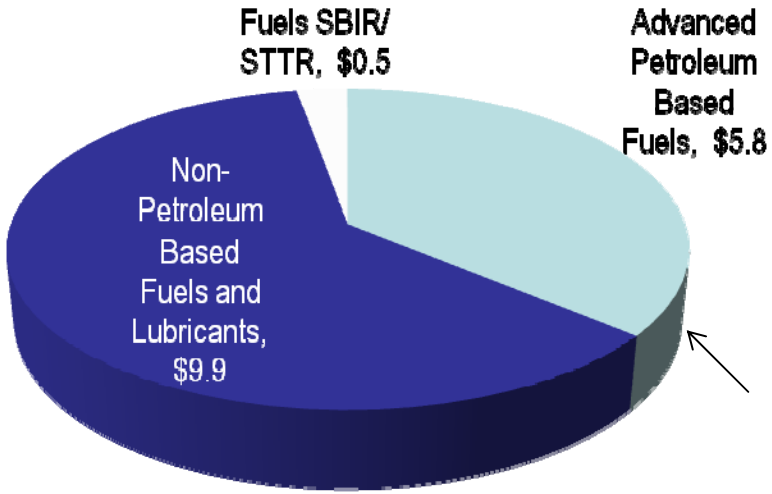
Budget Summary – Fuels Technology

FY 2007 Appropriation
$18.4 million total



FY 2008 Appropriation
$17.8 million total



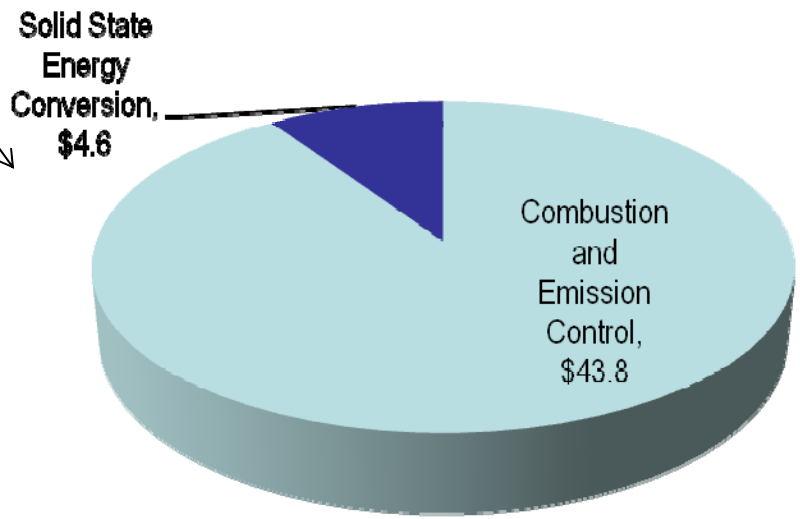


FY 2009 Request
$16.1 million total

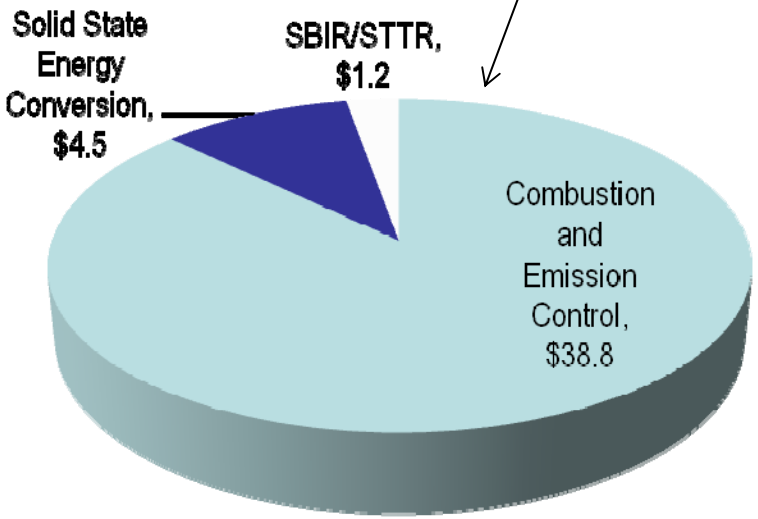
(all chart numbers in $ millions)

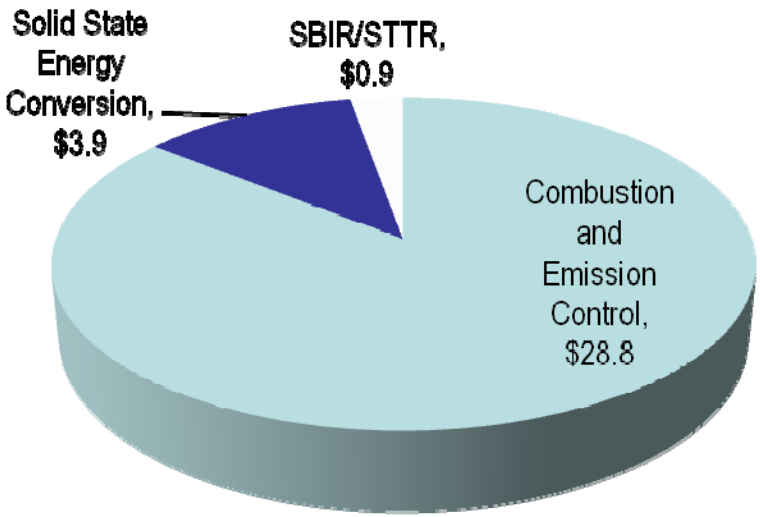
Budget Summary – Advanced Combustion Engine R&D

FY 2007 Appropriation
$48.3 million total



FY 2008 Appropriation
$44.6 million total

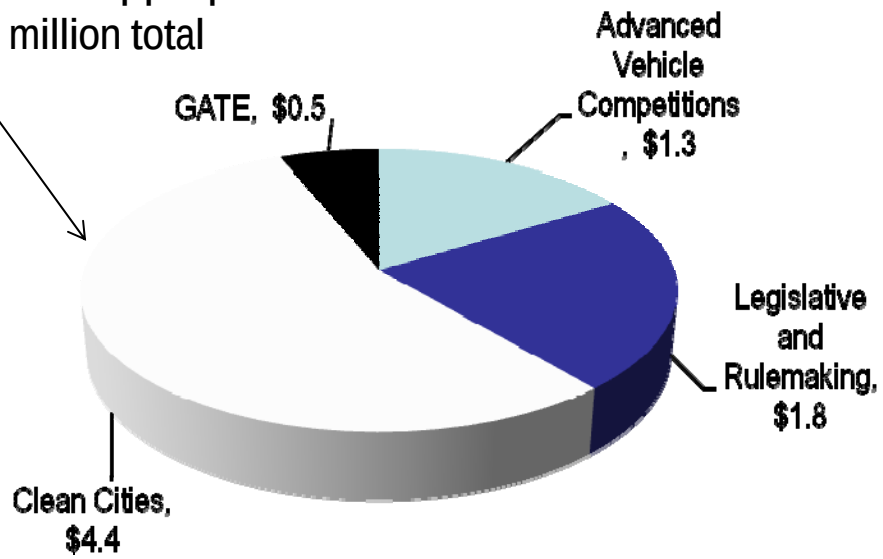




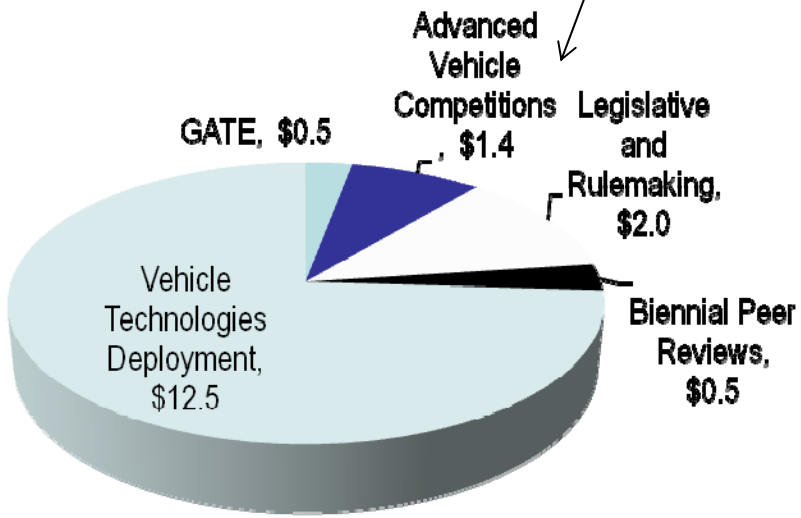
FY 2009 Request
$33.6 million total

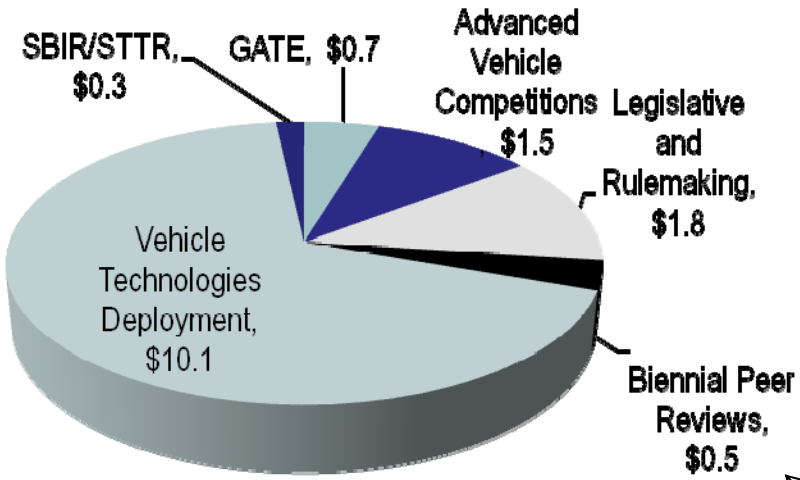
Budget Summary – Technology Integration

FY 2007 Appropriation
$8.0 million total



FY 2008 Appropriation
$16.8 million total





FY 2009 Request
$14.9 million total

Program Priorities

- Increase vehicle system efficiency (engine, powertrain, etc.) to reduce petroleum use
  - Advanced technologies for more efficient combustion of fuels
  - Optimization of engine systems to use alternative fuels
- Displacement of petroleum fuels with non-petroleum based fuels and fuel blends
  - Renewable diesel: work on biodiesel fuel specification to allow use of blends up to 20% biodiesel
  - Ethanol in light-duty vehicles: combined program of deployment, testing, and research; increasing availability of E85 and FFVs; conducting tests of effects of intermediate ethanol blends (between E10 and E85) on vehicles

Program Emphasis Changes

- Focus changes driven by EERE priorities
- More program emphasis on commercial deployment, less on basic R&D
- More focus on commercially-oriented R&D (less “basic science”)

Commercialization Efforts

- Light-duty diesel marketing campaign to encourage deployment of diesel passenger cars and light trucks
- Promotion of ethanol (E85) availability at commercial service stations
- Development of near-term technologies to optimize engine operation on E85 ethanol blends
- Studying impacts of mid-level ethanol blends on legacy vehicles

Future Program Directions

- Increase activities and scope to rapidly commercialize near-term technologies
- Maximize impact of technology investments on petroleum displacement