Vehicle & Systems Simulation & Testing
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Focus Area activities provide direct and indirect support for evolution of high efficiency vehicles as real world product offerings.

**Component /Systems Evaluation**
- $2.35m
- Virtual vehicle environment
- Energy management development/practices
- Systems benchmarking/evaluations

**Modeling & Simulation**
- $4.575m
- Develop & use modeling tools
- Assess technology potential
- Component Interactions
- Goal setting for R&D

**Lab & Field Evaluations**
- $10.475m
- Performance benchmarking
- Accelerated reliability data
- Modeling tool validation

**Stakeholders & Partners**
- $20.5m
- Industry Grant Recipients
- Original Equip. Manufacturers
- Utilities
- Consumers & Fleet Owners
- VTP Sub Programs
- DOE Programs
- Policy Makers

**Vehicle Systems Optimization**
- $3.82m
- Reduce auxiliary and parasitic loads
- Enabling Technologies

**PEV Codes & Standards**
- $2.565m
- Standards Committee Participation
- Develop and Validate
- Technology Development
Recovery Act: Transportation Electrification Initiative

Largest U.S. Electric Vehicle & Infrastructure Deployment Ever

- Approximately $400 million in federal funding to:
  - Automotive and Charging Industry
  - Educational Institutions
- Deploys over 20,000 charging stations to support 13,000 plug-in vehicles
  - Approximately 10,000 EVSEs and over 6100 vehicles as of April 30, 2012
- Collection of detailed data:
  - 113,000 PEV test miles, 4,430 charge events per day
  - LDV: http://avt.inl.gov/
  - M/HD: www.nrel.gov/vehiclesandfuels/fleettest/
Vehicle & Systems Simulation & Testing Accomplishments

• Initiated data collection on thousands of vehicles and EVSEs deployed through Transportation Electrification:
  – 867,000 PHEV/EV charging events on 6,995 EVSE have used 6,500 MWh
  – 113,000 PHEV/EV miles and 4,430 charging events documented *per day*

• Expanded Advanced Vehicle Testing Activity (AVTA):
  – Shifted focus from HEV to PHEV/EV
  – 35.1 million PHEV/EV test miles accumulated on 7,952 Light Duty vehicles representing 91 different models to date
  – 3.4 million test miles accumulated on 95 different MD/HD HEV vehicles since 2006
  – Began testing under extreme thermal conditions
  – Evaluated EVSE hardware

• Deployed commercialized version of Autonomie vehicle modeling & simulation platform
  – Developed through CRADA between Argonne National Lab and General Motors
  – Distributed through LMS
FY 2012 Emphasis

• Support Electric Drive Vehicle (EDV) Market Transformation
  o Fund industry wireless charging RD&D
    o DE-FOA-0000667, “Wireless Charging for Electric Vehicles”
    o Issued 04/05/2012; Closes 05/31/2012
  o Fund Zero Emission Cargo Transport RD&D
    o DE-FOA-0000669, “Zero Emission Cargo Transport Demonstration”
    o Issued 03/20/2012; Closed 05/15/2012
  o Expand Evaluations for EDV AVTE & Transportation Electrification Recovery Act
    o Enhance component/system capabilities
      o Common platform for on-road evaluations
      o Climate extremes testing
      o HIL Studies of Advanced Powertrains
    o Expand EDV Codes & Standards to address key vehicle/infrastructure concerns
• Validate and enhance Autonomie models and capability
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