Topics Discussed

- Update on the $45M DOE funded PHEV Program
- Vocational Duty Cycle Analysis
DOE Funded PHEV Update

- System Architecture
- Energy Utilization Strategy
- Data Acquisition and Vehicle Testing
System Architecture

- 65 kW Electric Motor
- 23 kWh Lithium Ion Battery Pack
- Electrified engine accessories
  - A/C compressor
  - Power steering/ power brake hydraulic pump
- 7 kW onboard charger
- 5 kW Auxiliary Power Generator
Energy Storage Calibration Strategies
Data Collection

- Each vehicle equipped with DAQ
  - CAN capable
  - Telemetry based

- Automated MATLAB utility used to reduce the data

- Quantify:
  - In-use fuel and energy consumption
  - Jobsite and driving use-profiles
Vehicle and System Testing

In-use data collection will drive testing

- Battery cycle life testing
- Vehicle composite emissions and fuel economy
  - Jobsite
  - Driving
Development of a Technology Demonstration Roadmap

- Create a vocational emissions pareto chart
- Focus resources on vocations that will provide a high ROI
Categorical Vehicle Emissions
Technology Toolbox

- Parallel Hydraulic Hybrid
- Series Hydraulic Hybrid
- Hybrid Electric
- Plug-in Hybrid Electric
- All Electric
- Fuel Cell
- SCR/DPF
- Alt Fuel Engines
Vocational Study

1. Categorize vehicle population
2. Estimate aggregate emissions from each category
3. Develop use-profile for highest emitting categories
4. Develop demo programs based on potential emission reductions
5. Perform modeling to estimate emissions reductions
Questions?