EERE NATIONAL LAB IMPACT SUMMIT

MAY 4, 2016
GOLDEN, COLORADO

Transportation Sector – Major Initiatives and Consortia

- **Co-Optima** – Co-Optimization of Fuels and Engines
- **SMART Mobility** – Systems and Modeling for Accelerated Research in Transportation
- **LightMAT** – Lightweight Materials National Laboratory Consortium
- **CAEBAT** – Computer-Aided Engineering for Electric-Drive Vehicle Batteries

Co-Optima

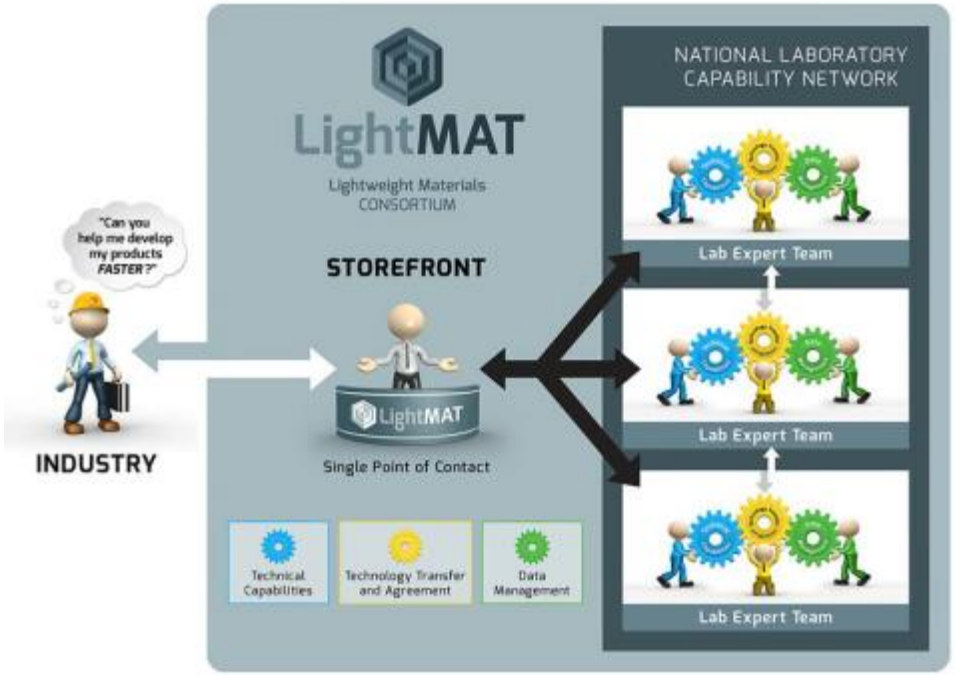
The Co-Optima initiative draws on the collaborative expertise of two DOE research offices, nine national laboratories, and numerous industry and academic partners

SMART Mobility

- Radically reshaping the nation's transportation energy footprint by exploring untapped system-level efficiencies
- Combines expertise of national labs, industry, and federal, state and local efforts

LightMAT

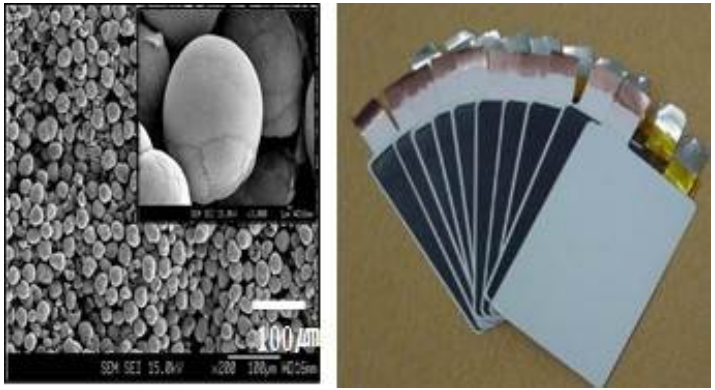
- Network of national labs with lightweight materials development and utilization capabilities
- Matches industry research teams with expertise and equipment at national labs



CAEBAT

- Accelerating the development and lowering the cost of lithium-ion batteries
- Collaboration between national labs and battery, vehicle, and software industries

Industry/Lab Collaboration Success Stories



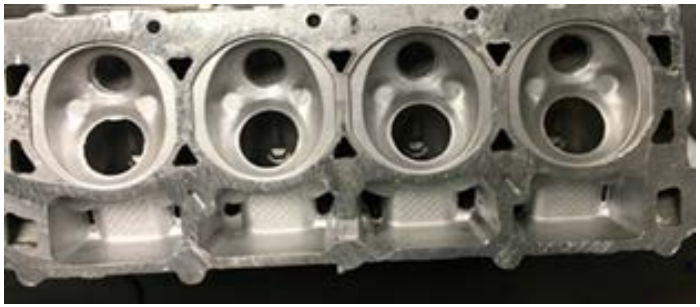
Boosting Battery Performance

Advanced cathode materials development increases energy density of electric vehicle batteries, enabling longer all-electric range with the same number of battery cells

Increasing Wireless Charging Efficiency

Wireless charging system demonstration shows >90% grid-to-battery efficiency while in-motion wireless charging system achieves charge-sustaining energy transfer

Industry/Lab Collaboration Success Stories



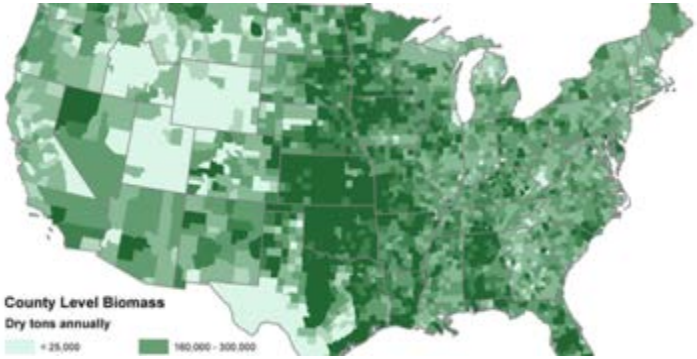
Enabling Next-Generation Engines

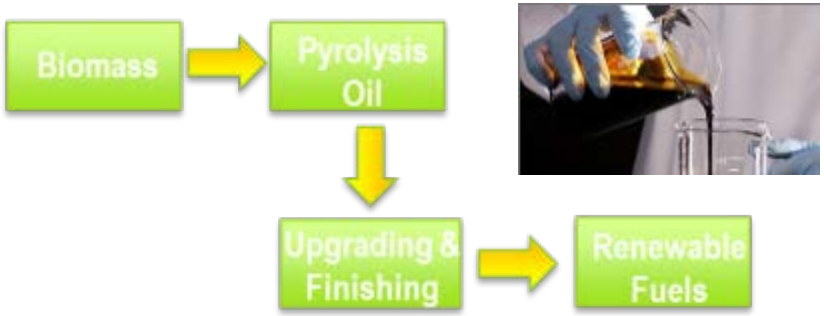
Developed low-cost, high-performance aluminum alloy with a 25% increase in strength at temperatures up to 300°C

Improving Electric Vehicle Efficiency

Inverter package development improves heat transfer and increases city-cycle efficiency by 6%—introduced in 2016 Volt

Industry/Lab Collaboration Success Stories





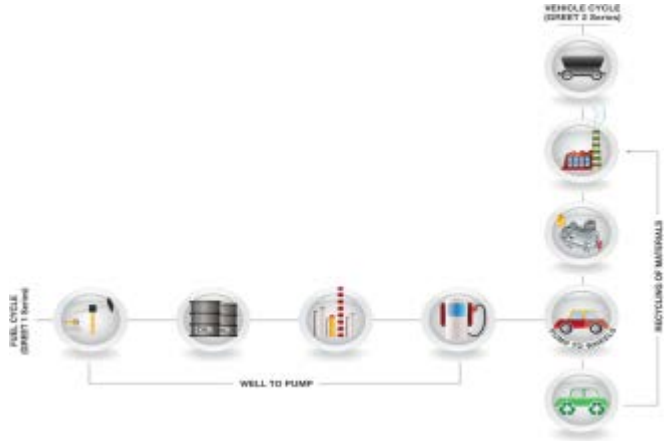
Assessing Biomass Resource Potential

Study identified biomass resource potential—a billion dry tons by 2022—enough to meet the RFS2 advanced biofuel goals as well as significant additional biomass for electricity, chemicals, and transportation fuels

Using Refineries for Biofuels Production

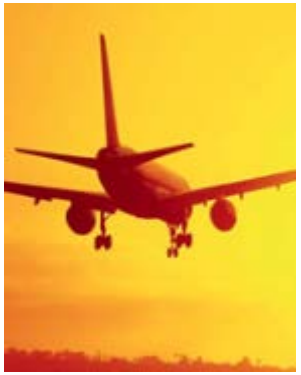
Provided critical data enabling EPA approval of pathway for co-processed cellulosic biofuels and of selling refinery-upgraded pyrolysis oils as finished fuels

Industry/Lab Collaboration Success Stories



GREET Model Registrants Exceed 23,000

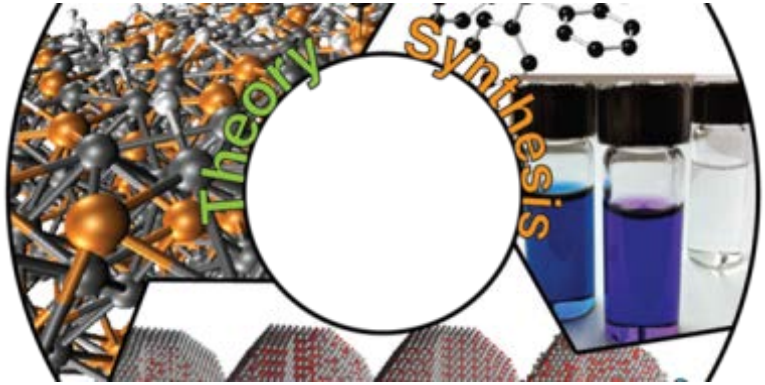
GREET's lifecycle assessment capability was used for EPA submissions of 13 fuels from 13 feedstocks, including first generation, second generation, algae, and waste feedstocks



Enabling Scale-Up of Aviation Biofuels from Alcohols

Enabled certification and market acceptance of aviation biofuels made from 100% renewable resources

Industry/Lab Collaboration Success Stories



ChemCatBio Resource Network Spurs Commercialization of New Materials

By leveraging national lab capabilities and expertise, ChemCatBio can bring new catalytic materials to commercial bioenergy applications 2X faster and at half the cost

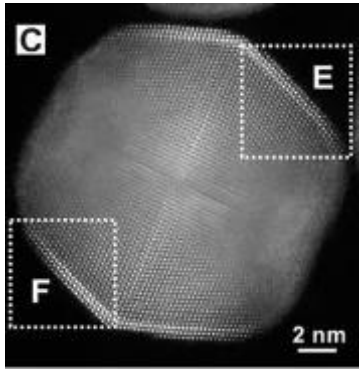
Biofuels Page Views Topped 670,000 in 2015

The Alternative Fuels Data Center provides information, data, and tools pertaining to the use of alternative and renewable fuels, advanced vehicles, and fuel-saving measures

Industry/Lab Collaboration Success Stories

Identifying Defects in Fuel Cell Components

Quality-control techniques and in-line diagnostics help industry improve the quality and yield in manufacturing fuel cell component materials



Characterizing Fuel Cell Materials

Advanced microscopy and x-ray mapping aid in the study of low-platinum, highly durable electrocatalysts for fuel cells—driving down the cost of fuel cell systems

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