

Applicant	DOE Award Amount	Project Title	Project Location	Project Description
Predictive Engineering Tools for Carbon Fiber Composites				
Pacific Northwest National Laboratory	\$1,001,000	Predictive Engineering Tools for Injection-Molded Long-Carbon-Fiber Thermoplastic Composites	Richland, WA	Integrate and validate fiber orientation and length distribution models for injection molded long-carbon fiber thermoplastic composites. Models will be validated for a complex three-dimensional automotive part made from long-carbon fiber thermoplastic composites.
Oak Ridge National Laboratory	\$747,820	Fiber Orientation and Fiber Length Distribution Prediction for Injection Molded Long Carbon Fiber Composites	Oak Ridge, TN	Implement and validate computational tools for prediction of fiber orientation and fiber length distribution in injection molded long carbon fiber thermoplastic composites for automotive applications. Validation would be performed on a 3-D complex part.
Integrated Computational Materials Engineering (ICME) Development of Advanced Steel for Lightweight Vehicles				
United States Automotive Materials Partnership	\$6,000,000	Integrated Computational Materials Engineering Approach to Development of Lightweight 3GAHSS Vehicle Assembly	Detroit, MI	Demonstrate an ICME approach for the development and deployment of third generation advanced high strength steels (3GAHSS) for weight reduction in passenger vehicles through the integration and application of a suite of models, and simulate forming and performance for an assembly of at least four components.

Advanced Alloy Development for Automotive and Heavy-Duty Engines				
Ford Motor Company	\$3,290,000	ICME Guided Development of Advanced Lightweight Cast Aluminum Alloys for Automotive Engine Applications	Detroit, MI	Develop a new class of advanced, cost competitive aluminum casting alloys, using ICME tools, providing a 25% improvement in component strength relative to components made with A319 or A356 alloys using sand and semi-permanent casting processes for high-performance engine applications.
Oak Ridge National Laboratory	\$3,500,000	High Performance Cast Aluminum Alloys for Next Generation Passenger Vehicle Engines	Oak Ridge, TN	Develop and implement cost-effective and improved cast aluminum alloys that would enable the design of higher efficiency light-duty passenger vehicle engines. Small batch castings of identified alloys will be harvested for property measurements.
General Motors	\$3,498,650	Computational design and Development of a New, Lightweight Cast Alloy for Advanced Cylinder Heads in High-efficiency, Light-duty Engines	Detroit, MI	Demonstrate the use of ICME tools to accelerate the development of a new, high-performance cast alloy for critical structure applications like high-efficiency automotive engines with minimum lead-time and cost. Comprehensive cost models will also be developed for annual production runs up to 500,000 units of cylinder heads using the new alloy.
Caterpillar Inc.	\$3,477,130	Development of Advanced High Strength Cast Alloys for Heavy Duty Engines	Mossville, IL	Develop new, high-strength ferrous alloys for cylinder heads and engine blocks to allow for higher cylinder pressures and increased engine efficiency. A detailed cost model for the new component design will be developed to compare performance versus cost tradeoffs of the new design compared to current production components.