Applicant	Location	Description	Federal Cost Share[1]
Developing the Scientific Foundation for Advanced Automotive Cast Magnesium Alloys – Kinetics (Area of Interest 1)			
Regents of the University of Michigan	Ann Arbor, MI	This project will measure how temperature changes affect advanced cast magnesium alloys.	$600,000
The Ohio State University	Columbus, OH	This project will apply high-throughput approaches to study the kinetics of magnesium-based systems for automotive cast magnesium alloys.	$600,000
Pacific Northwest National Laboratory	Richland, WA	This project will examine the micro-structural evolution of automotive cast magnesium alloys during solidification and heat-treatment.	$500,000
Developing the Scientific Foundation for Advanced Automotive Cast Magnesium Alloys – Corrosion Behavior (Area of Interest 2)			
Oak Ridge National Laboratory	Oak Ridge, TN	This project will develop an improved understanding of corrosion in advanced magnesium alloys.	$100,000
Arizona Board of Regents for Arizona State University	Tempe, AZ	This project will examine corrosion of magnesium alloys at the microstructure level.	$499,961
Mississippi State University	Mississippi State, MS	This project will utilize a multi-scale modeling and experimental approach to examine corrosion in magnesium alloys.	$499,998
Body-in-white Joining of Aluminum to Advanced High Strength Steel at Prototype Scale (Area of Interest 3)			
Oak Ridge National Laboratory	Oak Ridge, TN	The project will develop and validate solid-state spot joining technology to join body-in-white high strength steel and aluminum.	$178,714
Ford Motor Company	Dearborn, MI	This project will develop and demonstrate a novel impact welding technique for multi-material body-in-white.	$1,500,000
General Motors LLC	Warren, MI	This project will develop the processes and tools to join aluminum to advanced high strength steel utilizing friction stir scribe technology.	$1,278,125
Breakthrough Techniques for Dissimilar Material Joining (Area of Interest 4)			
Johns Hopkins University	Baltimore, MD	This project will develop heat-generating foils to provide strong and stable bonds between aluminum alloys, magnesium alloys, and steels.	$595,520 (jointly funded)
Chrysler Group LLC	Auburn Hills, MI	This project will demonstrate a robust, cost effective, and versatile technique to join die cast magnesium to dissimilar aluminum alloys and mild and high strength steels.	$587,248 (jointly funded)
Oak Ridge National Laboratory	Oak Ridge, TN	This project will demonstrate laser-assisted joining of aluminum and carbon fiber components to reduce vehicle weight.	$600,000
The Ohio State University	Columbus, OH	This project will develop and demonstrate vapor-assisted collision welding of dissimilar metals.	$568,499 (jointly funded)
Michigan State University, Composite Vehicle Research Center	East Lansing, MI	This project will demonstrate the bonding, repairability, and reassembly of dissimilar materials using thermoplastic adhesives.	$599,999 (jointly funded))

[1] Through the Advanced Vehicle Power Technology Alliance between the Department of Energy and the Department of the Army, the Army is contributing $1.9 million co-funding in several areas where there are joint development opportunities.

Applicant	Location	Description	Federal Cost Share[1]
Development of High-Performance Cast Alloys and Processing Techniques for Engine Rotating Components (Area of Interest 5)			
Caterpillar Inc.	Mossville, IL	This project will develop a combination of new alloys and novel casting techniques to produce high-performance, low-cost castings for crankshafts and rotating components with properties similar to forged units.	$1,500,000
High Temperature DC Bus Capacitor Cost Reduction & Performance Improvements (Area of Interest 6)			
Sigma Technologies International Group, Inc.	Tucson, AZ	This project will focus on reducing the cost, size, and weight of high temperature capacitors for power electronics while increasing durability.	$2,443,559
Argonne National Laboratory	Argonne, IL	This project will develop an efficient, cost-effective process to produce advanced high-temperature capacitors for power inverters in electric drive vehicles.	$1,859,897
General Electric Company - GE Global Research	Niskayuna, NY	This project will develop high performance DC link film capacitors for electric drive vehicle systems.	$1,750,000
Applied Battery Research for Improvements in Cell Chemistry, Composition, and Processing (Area of Interest 7)			
Argonne National Laboratory	Argonne, IL	This project will develop a new high energy electrochemical couple for automotive applications that meets or exceeds energy requirements for electric drive vehicles.	$2,500,000
Farasis Energy, Inc.	Hayward, CA	This project will develop high energy density lithium-ion cells for electric vehicles based on novel, high voltage manganese-rich cathode material coupled with a metal alloy composite anode and a high voltage electrolyte.	$2,762,074
Envia Systems	Newark, CA	This project will develop high-energy lithium batteries for plug-in electric vehicles by pairing high capacity manganese rich cathodes with high capacity silicon/carbon based nanocomposites.	$3,028,070
TIAX LLC	Lexington, MA	This project will develop high-energy lithium batteries for PEV applications that couples the applicant's patented CAM-7, high-energy high-power cathode material, silicon-based anode material, and a separator capable of supporting high current density.	$1,747,787
The Pennsylvania State University	University Park, PA	This project will develop high energy, long cycle life lithium-ion batteries for PEV applications consisting of a micro-sized porous silicon alloy-carbon composite anode coupled with a high performance Ni-rich layered oxide cathode coated with an ultra-stable LiFePO4 coating.	$2,985,000
3M Company	St. Paul, MN	This project will develop a new high energy electrochemical couple for automotive applications that exceeds energy requirements for PEV applications that couples a high capacity core shell cathode, advanced electrolyte, and advanced stable silicon alloy composite anode with a novel conductive polymer binder.	$3,000,043

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Applicant	Location	Description	Federal Cost Share[1]
Computer Aided Engineering for Electric Drive Batteries (Area of Interest 8)			
Alliance for Sustainable Energy - NREL, LLC	Golden, CO	This project will develop computer-aided design tools to characterize the coupled mechanical and electrochemical response of lithium-ion batteries to abuse conditions in cells.	$1,003,674
EC Power LLC	State College, PA	This project will develop and validate design tools to characterize the coupled mechanical and electrochemical response of lithium-ion batteries to abuse conditions in cells	$1,000,000 (jointly funded)
Sandia National Laboratories	Albuquerque, NM	The project will develop computer-aided tools to predict and understand the implications of thermal runaway of lithium-ion batteries.	$1,500,000
Alliance for Sustainable Energy - NREL, LLC	Golden, CO	The project will develop a computational methodology to significantly improve the computational efficiency of nonlinear multiscale battery modeling and maintain or enhance the solution accuracy from the most advanced state-of-the-art models.	$717,580
Advanced Electrolytes for Next-Generation Li Ion Chemistries (Area of Interest 9)			
Daikin America, Inc	Decatur, AL	This project will develop advanced high performance electrolytes, based on fluoro-chemistries that allow batteries to operate at a higher voltage and temperature.	$912,021
Argonne National Laboratory	Argonne, IL	This project will develop a new generation electrolyte system with outstanding stabilities at high voltage and high temperature and with improved safety characteristics for lithium ion battery for PHEV and EV.	$360,000
Wildcat Discovery Technologies, Inc.	San Diego, CA	This project will develop novel non-carbonate based electrolytes for silicon anodes, enabling substantial improvements in energy density and cost relative to current lithium-ion batteries.	$999,778
Lubricant Formulations to Enhance Fuel Efficiency (Area of Interest 10)			
Ford Motor Company	Dearborn, MI	This project will adapt lubricant technologies from high-value, high-precision applications, such as turbo-machinery, for use as an axle lubricant base stock.	$350,000 (jointly funded)
Northwestern University	Evanston, IL	This project will develop novel lubricant formulations with the potential to improve the fuel efficiency of light and medium vehicles by at least 2 percent.	$1,000,000 (jointly funded)
Pacific Northwest National Laboratory	Richland, WA	This project will develop and test novel molecules in base oils that may substantially improve fuel efficiency without increasing wear.	$519,375
Ashland Consumer Markets	Lexington, KY	This project will develop prototype lubricants to improve fuel economy through integrated design of advanced lubricants in multiple systems in heavy-duty vehicles.	$593,869 (jointly funded)

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Applicant	Location	Description	Federal Cost Share[1]
Advanced Climate Control Auxiliary Load Reduction (Area of Interest 11)			
Delphi Automotive Systems, LLC	Troy, MI	This project will develop and integrate a phase change heating system for vehicles and demonstrate a significant reduction in the energy used for passenger cabin heating in electric vehicles.	$1,741,263
Halla Visteon Climate Control USA LLC	Van Buren Township, MI	This project will develop, integrate, and demonstrate an efficient heating and cooling (heat pump) system as well as other novel solutions to achieve and maintain passenger comfort using less battery power.	$2,342,108
Advanced, Integrated, Modular, and Scalable Wide Bandgap (WBG) Inverter R&D for Electric Traction Drive Vehicles (Area of Interest 12)			
Arkansas Power Electronics International, Inc.	Fayetteville, AR	This project will demonstrate advanced wide bandgap inverters for under-the-hood electric vehicle traction drives.	$1,999,935

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