Fiscal Year 2020 Advanced Vehicle Technologies Research

FOA # DE-FOA-0002197

Applicant	Location city, state	Project Description	Federal Share
Area of Interest (AOI) 01a: Lithium Ion Batteries using Silicon-based Anodes-Research			
The Research Foundation for The SUNY Stony Brook University	Stony Brook, NY	Fully Fluorinated Local High Concentration Electrolytes Enabling High Energy Density Silicon Anodes	$1,000,000
University of Delaware	Newark, DE	Devising mechanically compliant and chemically stable synthetic solid-electrolyte interphases on silicon using for long cycling Si anodes	$1,000,000
University of Maryland	College Park, MD	Rational Electrolyte Design for Li-ion Batteries with Micro-Sized Silicon Anodes	$1,000,000
AOI 01b: Lithium Ion Batteries using Silicon-based Anodes-Research, Development, and Validation			
Enovix Corporation	Fremont, CA	Structurally and Electrochemically Stabilized Silicon-rich Anodes for Electric Vehicle (EV) Applications	$3,200,000
Group14 Technologies Inc.	Woodinville, WA	Rationally Designed Lithium Ion Batteries Towards Displacing Internal Combustion Engines	$3,961,695
Sila Nanotechnologies	Alameda, CA	Ultra-Low Volume Change Silicon-Dominant Nanocomposite Anodes for Long Calendar Life and Cycle Life	$4,000,000
Solid Power Inc	Louisville, CO	Solid State Lithium Ion Batteries using Silicon Composite Anodes	$3,999,989
AOI 02: Low Cost Electric Traction Drive Systems Using No Heavy Rare Earth Materials			
American Axle & Manufacturing, Inc.	Detroit, MI	Low Cost, High-Performance, Heavy Rare Earth-Free 3-In-1 Electric Drive Unit	$5,000,000
Marquette University	Milwaukee, WI	Low-Cost Rare-Earth Free Electric Drivetrain Enabled by Novel Permanent Magnets, Inverter, Integrated Design and Advanced Thermal Management	$5,000,000
AOI 03: Utility Managed Smart Charging Research and Demonstration			
ABB Inc.	Cary, NC	e-Mosaic: Electrification Mosaic Platform for Grid-Informed Smart Charging Management	$4,933,028
Dream Team Co LLC	Elkridge, MD	Resilient-Interoperable-Smart Charge Management Control Systems Architecture for EVs at scale.	$4,762,949
Exelon Corporation	Baltimore, MD	Utility Managed Smart Charging for Consumer and Grid Benefits	$4,958,905
AOI 04: Platinum Group Metals (PGM) Content Reduction to Enable Cost-Effective Aftertreatment for Gasoline and Diesel Engines			
General Motors LLC	Warren, MI	Slashing Platinum Group Metals Content in Catalytic Converters: An Atoms-to-Autos Approach	$2,500,000
Washington State University	Pullman, WA	Greatly Reduced Vehicle Platinum Group Metals Content Using Engineered, Highly Dispersed Precious Metal Catalysts	$2,500,000

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AOI 05: Improved Efficiency of Medium- and Heavy-Duty Natural Gas and Propane (LPG) Engines			
Colorado State University	Fort Collins, CO	Development of Advanced Combustion Strategies for Direct Injection Heavy Duty Propane Engines to Achieve Near-Diesel Engine Efficiency	$3,450,085
UT - Battelle, LLC dba Oak Ridge National Laboratory	Oak Ridge, TN	Stoichiometric Spark Ignition Propane Engine with Diesel Efficiency Parity	$1,549,915
Volvo Technology of America, LLC	Greensboro, NC	Development of a Heavy-Duty Direct-Injection Spark-Ignition Natural Gas Engine	$2,176,979
AOI 06a: Research to Transform the Efficiency of Off-Road Vehicles			
Pacific Northwest National Laboratory	Richland, WA	Reduced Cost & Complexity for Off-highway Aftertreatment	$2,500,000
Regents of University of Minnesota	Minneapolis, MN	Optimization and Evaluation of Energy Savings for Connected and Autonomous Off-Road Vehicles	$1,670,000
Westinghouse Air Brake Technologies Corporation (Wabtec Corporation)	Erie, PA	Ducted Fuel Injection and Cooled Spray Technologies for Particulate Control in Heavy-Duty Diesel Engines	$2,474,075
AOI 06b: Efficient Agricultural Vehicle Research, Development, and Validation			
Purdue University	West Lafayette, IN	A New Approach for Increasing Efficiency of Agricultural Tractors and Implements	$2,500,000
AOI 07: Two-Stroke, Opposed Piston Engine Research and Development			
Achates Power, Inc.	San Diego, CA	New Two-Cylinder Prototype Demonstration and Concept Design of a Next Generation Class 3-6 Opposed Piston Engine	$5,000,000
AOI 08: Lightweight and High-Performance Fiber-Reinforced Polymer Composites for Vehicle Applications			
Ford Motor Company	Dearborn, MI	Multi-functional Smart Composite Structures with Electronics Integration for Smart Vehicles	$7,501,014
General Motors LLC		Development of Tailored Fiber-Reinforced Composites Materials Systems for High-Volume Manufacturing of Structural Battery Enclosure	$7,500,000
AOI 09: Improving Transportation System Efficiency Through Better Utilization			
Clemson University	Clemson, SC	Understanding Human Factors to Develop Technologies to Improve User Acceptance of Pooled Rideshare for Increasing Transportation System Energy Efficiency	$2,000,000

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Cummins Inc.	Columbus, IN	Improving Freight Efficiency via a Learning-Based Optimal Freight Management System using Connectivity and Automation	$2,000,000
PACCAR Inc	Mount Vernon, WA	Co-optimization of Vehicle Specification and Routing to Improve Commercial Transportation System Efficiency and Reduce Deadheading	$2,000,000
AOI 10: Enabling Vehicle and Infrastructure Connectivity			
Michigan Technological University	Houghton, MI	Cohort-based Energy Optimization for Mixed Vehicle Classes, Powertrains, and Levels of Automation via Expanded Data Sharing Using Vehicle-to-Vehicle and Vehicle-to-Infrastructure Communication	$1,999,951
University of Alabama	Tuscaloosa, AL	Improving Network-wide Fuel Economy and Enabling Traffic Signal Optimization Using Infrastructure and Vehicle-based Sensing and Connectivity	$1,991,319
University of Tennessee at Chattanooga	Chattanooga, TN	Developing an Energy-Conscious Traffic Signal Control System for Optimized Fuel Consumption in Connect Vehicle Environments	$1,893,168
AOI 11: Improving Mobility, Affordability, and Energy Efficiency Through Transit			
Chattanooga Area Regional Transportation Authority	Chattanooga, TN	Artificial Intelligence-Engine for Optimizing Integrated Service in Mixed Fleet Transit Operations	$1,750,155
Massachusetts Institute of Technology	Cambridge, MA	Transit-Centric Smart Mobility System for High-Growth Urban Activity Centers: Improving Energy Efficiency through Machine Learning	$1,750,000
Utah State University	Logan, UT	Increasing Affordability, Energy Efficiency, and Ridership of Transit Bus Systems through Large-Scale Electrification	$1,750,000
AOI 12: Gaseous Fuels Technology Demonstration Projects			
Cummins Inc.	Milpitas, CA	Integrated Fuel Cell Electric Powertrain Demonstration	$3,443,663
Gas Technology Institute	Des Plaines, IL	Field Demonstration of a Near-Zero, Tier 5 compliant, Natural Gas Hybrid Line-Haul Locomotive	$2,599,733
AOI 13: Alternative Fuel Proof-of-Concept in New Communities and Fleets			
Administrators of the Tulane Educational Fund	New Orleans, LA	Demonstrating Electric Shuttles for the New Orleans Region	$737,555
American Lung Association	St. Paul, MN	Cold-Weather Operation, Observation and Learning Electric Vehicles: COOL EVs	$997,274
Clean Fuels Ohio	Columbus, OH	Zero Emission Freight Future	$670,000
Denver Metro Clean Cities Coalition	Arvada, CO	Delivering Clean Air in Denver: Propane Trucks and Infrastructure in Mail Delivery Application	$500,000
Forth	Portland, OR	St. Louis Vehicle Electrification Rides for Seniors (SiLVERS)	$500,000
Municipality of Anchorage Department of Solid Waste Services	Anchorage, AK	Pilot Heavy-Duty Electric Vehicle Deployment for Municipal Solid Waste Collection	$689,659

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Shelby County Government	Memphis, TN	Advancing Climate and Innovation Goals of Memphis and Shelby County: Electrification of key fleet vehicles to capture cost savings and climate benefits	$500,000
The University of Texas at Austin	Austin, TX	Medium-duty eTruck: Pilot Electrified Fleets in Urban and Regional Applications	$1,000,000
AOI 14: Electric Vehicle and Charging Community Partner Projects			
American Lung Association	St. Paul, MN	Twin Cities Electric Vehicle Community Mobility Network	$6,653,985
PacifiCorp	Portland, OR	WestSmart EV@Scale: Western Smart Plug-in Regional Partnership for Electric Vehicle (EV) Adoption and Infrastructure at Scale	$6,640,647
Virginia Department of Mines, Minerals and Energy	Richmond, VA	The Mid-Atlantic Electrification Partnership: An Electrification Ecosystem of Intermodal Leadership and Intercity Travel	$5,988,154
AOI 15: Technology Integration Open Topic			
East Tennessee Clean Fuels Coalition	Knoxville, TN	Developing Replicable, Innovative Variants for Engagement (DRIVE) for Electric Vehicles in the USA.	$1,801,697
National Fire Protection Association	Quincy, MA	Electric Vehicle Preparedness Toolkit and Expanded Online EV Training Courses to provide Nationwide, Multi-Disciplinary Community Outreach Education.	$678,087
Roush Industries	Livonia, MI	Waste Not, Want Hot? A More Sustainable Way to Keep Buses Warm. Develop and demonstrate a propane powered cabin heating system for battery-electric buses.	$1,353,658
Transportation Energy Partnership	Washington, DC	Helping America's Rural Counties Transition to Cleaner Fuels and Vehicles.	$1,078,581
West Virginia University Research Corporation	Morgantown, WV	VoICE-MR: Vocation Integrated Cost Estimation for Maintenance and Repair of Alternative Fuel Vehicles (AFV)	$1,085,682
AOI 16: Transportation and Energy Analysis			
Board of Trustees of the University of Illinois	Champaign, IL	Integrated Modeling and Technoeconomic Assessment of Electric Vehicle Community Charging Hubs	$350,000
Electric Power Research Institute, Inc.	Palo Alto, CA	Analysis of Electric Heavy-Duty Driving and Infrastructure Requirements Within A Regional Area	$399,999
Regents of the University of Minnesota	Minneapolis, MN	Development of a Heavy-Duty Electric Vehicle Integration and Implementation (HEVII) Tool	$399,449
University of Washington	Seattle, WA	Micromobility Screening for City Opportunities Online Tool (SCOOT)	$299,899