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Notice of Funding Opportunity

Title: Office of Energy Efficiency and Renewable Energy (EERE), Vehicle Technologies Office (VTO) and Hydrogen and Fuel Cell Technologies Office (HFTO) – SuperTruck 3
Website: https://www.grants.gov/web/grants/view-opportunity.html?oppId=332882
Funding: Total: $100,000,000. Maximum awards: $16M-$33M, depending on project.
Dates: Deadline for Concept Papers: May 13, 2021
Application Submission Deadline: July 12, 2021

Summary: In partnership with industry, EERE's VTO and HFTO have established aggressive targets to focus research, development and demonstration on cost-reduction, efficiency, and performance. This FOA will seek innovative R&D concepts to enable medium- and heavy-duty vehicle original equipment manufacturers (OEMs), suppliers, fleet operators, companies operating large captive fleets, universities and National Laboratories to develop higher efficiency, low-emissions trucks and freight systems to use energy more efficiently and reduce CO2 emissions standards. Specifically, this FOA will support the Administration goal of net-zero GHG emissions by 2050 by accelerating the development of battery electric, hydrogen fuel cell, and hybrid electric powertrains for medium- and heavy-duty commercial vehicles.

Project Topic Areas:
The purpose of this announcement is to solicit applications for co-funded projects that will enable class 4 through 8 medium- and heavy-duty original equipment manufacturers (OEMs), suppliers, and fleet partners to develop higher efficiency trucks and freight systems that significantly reduce CO2 emissions while meeting future criterion emission standards. Technologies to improve the vehicle system-level efficiency may include powertrain electrification (including hydrogen and fuel cell technologies, batteries, electric machines, and hybridization strategies such as fuel cell range extenders or plug-in electric vehicles), refueling or charging, vehicle light-weighting and freight system optimization. Projects can include multiple vehicle types, reflecting that freight usually moves over multiple vehicles before reaching its end destination. The overall objective of each project should be to demonstrate how a substantial (75% or greater) reduction in the GHGs and local pollutants from the movement of goods in trucks can be achieved in a way that is economical and scale-able. As part of the project analysis, the applicant will include a baseline reference vehicle(s) and the underlying system in which they operate that is equal in scope to the proposed project.

Funding:
EERE expects to make a total of approximately $100,000,000 of federal available for new awards under this FOA, subject to the availability of appropriated funds. EERE anticipates making approximately 3 to 6 awards under this FOA. EERE may issue one, multiple, or no awards. Individual awards are anticipated to vary between $16,000,000 and $33,000,000. EERE anticipates making awards that will run from 27 months up to 51 months in length, comprised of one or more budget periods. EERE will accept only new applications under this FOA. EERE will not consider applications for renewals of existing EERE-funded awards through this FOA. The cost share must be at least 50% of the total allowable costs for demonstration projects and must come from non-federal sources unless otherwise allowed by law.

Topic Area Number	Topic Area Title	Anticipated Number of Awards	Anticipated Minimum Award Size for Any One Individual Award (Fed Share)	Anticipated Maximum Award Size for Any One Individual Award (Fed Share)	Approximate Total Federal Funding Available for All Awards	Anticipated Period of Performance (months)
1	Efficient freight transport systems using one or more vehicles in classes 4 through 8	3-6	$16,000,000	$33,000,000	$100,000,000	27-51

Project Requirements:
Applications must:
Identify vehicle(s) baseline(s) and freight system baseline(s) for validation of performance improvement. Projects will be validated against these baselines to demonstrate meeting the project performance targets such as, but not limited to, cost reduction, GHG reduction, vehicle efficiency, freight efficiency, fuel economy, weight reduction, and total cost of ownership. Baseline information should describe the type of vehicle(s) used and the typical or representative duty cycle(s) experienced by each vehicle in the baseline system. The baseline should include sufficient refueling information, dwell times, overnighting and other operational patterns to allow for meaningful comparison to future advanced powertrain technologies and freight systems that will have different operational and refueling patterns.

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Identify vehicle freight system missions or vocations for the baseline and proposed vehicle such as first-mile/last mile, regional hub-to-hub, local delivery, or straight trucks and tractor trailers used in regional haul and long-haul operation, etc. Identify fleet partner hub-to-hub and regional distribution routes.

Identify models for use in predicting optimal powertrain architecture and vehicle configurations for highest freight efficiency and lowest life-cycle carbon footprint. Identify planned optimization technologies that could include vehicle-to-vehicle and vehicle-to-infrastructure connectivity, onboard energy management systems, route optimization, geo-fencing, dynamic in-route load dispatching, electrical grid and vehicle charging load management, and communication protocols. Identify plans to optimize total cost of operation by leveraging onboard and real-time connectivity solutions (optimized energy management, dynamic route management). Specifically identify the measurable improvement in vehicle performance, cost, durability, and freight system efficiency to be achieved under the project. Identify and describe in detail, the technologies to be developed, integrated, and demonstrated under the project. Address fueling/charging that will be required to demonstrate the vehicles that will be developed. Identify the planned performance of the technologies to be developed in relation to the targets identified in this FOA.

Identify and plan for testing of component-level, vehicle system-level, and freight system-level technologies. Test data including overall vehicle design will be provided to DOE for further data analysis. These studies will be compared to vehicle and freight system baselines to demonstrate compliance with proposed performance, cost, durability, and freight system efficiency targets identified. Organize project activities in four phases: 1) simulation and analysis, 2) design,3) vehicle integration, and 4) vehicle demonstration. If the baseline and proposed project scope includes a scale that is so large it is not practical to fully demonstrate, the proposal should indicate what portions of the freight system will be physically demonstrated and what portions will be simulated. Any simulations should be based on data that is developed in the project. The data and tools used for any simulation of system level benefits should be clearly identified. Identify total cost of ownership for the planned system as compared to the baseline.

Eligible Applicants:
The National Energy Technology Laboratory is ineligible to participate as a prime applicant or as a team member/sub-recipient on any application because of its role in developing the requirements for this announcement. This FOA will restrict foreign entities from applying as prime recipients unless they have a U.S. incorporated subsidiary or affiliate with a physical location for business operations in the United States. No waivers will be provided for this restriction.

U.S. citizens and lawful permanent residents; State, local, and tribal government entities; Incorporated consortia, which may include domestic and/or foreign entities; For-profit entities, educational institutions, and nonprofits that are incorporated (or otherwise formed) under the laws of a particular state or territory of the United States and have a physical location for business operations in the United States are eligible to apply for funding as a prime recipient or subrecipient. Nonprofit organizations described in section 501(c)(4) of the Internal Revenue Code of 1986 that engaged in lobbying activities after December 31, 1995 are not eligible to apply for funding.

DOE/NNSA FFRDCs and Non-DOE/NNSA FFRDCs; Federal agencies and instrumentalities (other than DOE) are eligible to apply for funding as a subrecipient, but are not eligible to apply as a prime recipient. Other than as provided in the “Individuals” or “Domestic Entities” sections above, all prime recipients receiving funding under this FOA must be incorporated (or otherwise formed) under the laws of a State or territory of the United States and have a physical location for business operations in the United States. If a foreign entity applies for funding as a prime recipient, it must designate in the Full Application a subsidiary or affiliate incorporated (or otherwise formed) under the laws of a State or territory of the United States to be the prime recipient. The Full Application must state the nature of the corporate relationship between the foreign entity and domestic subsidiary or affiliate. A foreign entity may receive funding as a subrecipient. Unincorporated Consortia, which may include domestic and foreign entities, must designate one member of the consortium to serve as the prime recipient/consortium representative. The prime recipient/consortium representative must be incorporated (or otherwise formed) under the laws of a state or territory of the United States.