NCTCOG PRESENTATION

DOE Vehicle Technologies Office Grant Roundtable

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DOE Notice of Intent to Issue FOA

Vehicle Technology Office intends to issue Fiscal Year 2022 Vehicle Technologies Office Program Wide Funding Opportunity Announcement

Activities funded under this upcoming FOA will focus on several areas to achieve net-zero GHG emissions by 2050 including: advancement of electric drive technologies and battery electric vehicles, improvements in low-carbon fueled engines, and deployment of clean technologies in diverse communities.

More Information, Including Notice of Intent PDF and Teaming Partner List: Financial Opportunities: Funding Opportunity Exchange (energy.gov)

Concept Paper And Full Application Deadline: TBA

Area of Interest 1
Electric Drive System Innovations

The objective of the area of interest is to research, develop, and validate a high-power, low cost, heavy rare-earth mineral free motor and wide bandgap inverter traction drive system capable of increased power density and reduced cost consistent with Vehicle Technologies Office 2025 targets for use in electric vehicle applications.

Area of Interest 2
Off-Road Electric Vehicle Charging Concepts

The objective of the area of interest is to support development and validation of systems capable of providing charging solutions for off-road electric vehicles in diverse locations which may have limited grid capacity or unique duty-cycles. These solutions should utilize on-road charging standards to enable a cost reduction and improve interoperability. Technologies which represent a breakthrough in the integration and use of distributed energy resources and generation and the connection of those resources with the grid in a manner that allows for portability are highly encouraged.

Area of Interest 3
Powertrain Material for Battery Electric Vehicles

The objective of this area of interest is to research, develop, and validate component and subcomponent materials for electrified vehicle components and subassemblies that have the capability to reduce system level volume/power density (kW/L), weight/specific power (kW/kg), power (kW), and/or cooling requirements when compared to the baseline system at a low cost of weight saved when compared to a current state-of-the-art baseline. New materials, manufacturing techniques, and component designs utilizing these new materials/processing methods are encouraged.

Area of Interest 4
Multi-Functional Material and Structures Research and Development

The objective of this area of interest is to develop a new class of multi-functional (composite) materials and structures engineered and manufactured through synthesis of various types of lightweight materials, multi-functional sensors, and devices with embedded sensor networks. The new class of materials and structures will span diverse functionalities, carry mechanical loads, reduce noise and vibration harshness, improve thermal management, use structural energy storage, and monitor health of the vehicle's components at a system level with reduced weight and complexity.

Area of Interest 5a

Natural Gas Engine Demonstration for Off-Road, Rail, and Marine Applications

The objective of this area of interest is to develop and demonstrate new natural gas engine applications to enable highly efficient use in non-road applications including off-road vehicles, locomotives, and/or marine vessels. Applications should target technologies that decrease the life-cycle greenhouse gas (GHG) emissions compared to the baseline application or enabling the use of lower carbon natural gas by addressing major barriers to renewable natural gas or hydrogen blending. Concepts will be judged based on level of GHG reduction and market viability.

Area of Interest 5b
Low-GHG Concepts for Off-Road Vehicles and Equipment

The objective of the area of interest is to develop and validate technology applications capable of significantly decreasing greenhouse gas emissions, harmful criteria emissions, and total cost of ownership in the off-road vehicle and equipment sector. Concepts that result in full or partial vehicle electrification (including the fluid power system), and/or use of low-lifecycle carbon fuels are encouraged.

Area of Interest 5c

Advanced Opposed Piston 2-Stroke (OP2S) Hydrogen Combustion Architecture for Heavy-Duty Transportation, Including On- and Off-Road, Rail, and Marine Applications

The objective of this area of interest is to develop and validate an opposed piston two-stroke engine capable of hydrogen combustion and suitable for use in heavy-duty applications with performance validated on a chassis dynamometer. Hydrogen combustion has become a growing area of interest in industry as a bridge to hydrogen fuel cell applications or in areas where fuel cells currently do not have the demonstrated durability needed.

Area of Interest 5d

Demonstration of Dimethyl Ether Medium-Duty Engine for Non-Road Applications

The objective of this area of interest is to demonstrate a near-commercial, medium-duty, direct-injection engine operating on renewable DME for use in non-road vehicles or equipment.

Area of Interest 6
Clean Energy Mobility Solutions for Underserved Communities

The objective of this area of interest is to research, develop, and demonstrate connected and automated mobility solution transportation pilots that address the needs of underserved communities/regions and improve overall transportation system efficiency. Pilots under this area of interest will be required to assess and quantify the impacts of these technologies on energy efficiency, time, cost, and accessibility to transportation resources.

Area of Interest 7a and 7b
No Home Charging

The objective of area of interest 7 is to develop a comprehensive program that develops innovative approaches and supports deployment of low-cost charging solutions for drivers that do not have access to dedicated residential charging options. Low-cost charging in long-dwell settings can form the backbone of daily electric vehicle charging and are often done overnight where vehicles are parked. This area of interest focuses on demonstrating innovative and cost-effective approaches for residents in multi-family housing as well as urban residential areas that to not have dedicated parking and utilize public street parking. Projects should also work with outreach partners to document and broadly disseminate best practices and resources needed to replicate project success at scale.

Area of Interest 7a

No Home Charging: Multi-Family Housing Innovative Demonstrations, Technical Assistance and Best Practices

The objective of this area of interest is to work with owners and operators of multi-family housing developments to develop replicable programs that can provide cost-effective EV charging for residents. Projects should also include targeted technical assistance to building owners and property managers to support successful deployments of multi-family housing EV charging and address technical, soft cost and market barriers. Projects should propose how to document and share the best practices from these programs with other property owners.

Area of Interest 7b

No Home Charging: Electric Vehicle Charging for Overnight Parking

The objective of this area of interest is to develop, implement, and disseminate scalable strategies for electric vehicle chargers that provide cost-effective solutions for drivers who want to charge their EVs overnight while at home but do not have dedicated residential charging options. Projects should demonstrate the deployment of EV chargers accessible for overnight charging for EV drivers who do not have dedicated residential charging options using innovative approaches that overcome systemic barriers and ensure low cost. Projects should also work with outreach partners to document and broadly disseminate best practices and resources needed to replicate project success at scale, including how local governments can address parking, codes, payment, and accessibility issues, among other.

Area of Interest 8

Community Engagement, Outreach, Technical Assistance, and Training in Underserved Communities

The objective of this area of interest is to conduct community engagement, outreach, technical assistance, and training in underserved communities through partnerships with Clean Cities coalitions that advance EERE's priority to decarbonize the transportation sector. Project teams should include representatives from underserved communities or community-based organizations that represent the interests of underserved communities. Projects will develop community-driven strategic plans that define community transportation mobility goals and strategies that use transportation decarbonization technologies to meet community needs and document best practices in developing plans and engaging with underserved communities to meet mobility needs.

Area of Interest 9

Community-Driven Electric Vehicle Charging Deployment in Underserved Communities

The objective of this area of interest is to work at the community level to understand and address the issues around the deployment of electric vehicle charging stations in underserved communities and inform current and future EV charging deployment. Project teams should engage underserved communities to determine how investments in electric vehicle supply equipment can benefit the community, identify potential electric vehicle supply equipment sites that benefit the community, finalize an electric vehicle supply equipment deployment plan with community input. Projects may propose direct installation of electric vehicle chargers to evaluate how benefits actually accrued or may use approaches developed under the area of interest to inform community EV charger deployment under other Federal, State or Private programs. In addition, project teams should summarize best practices that maximize community benefits to ensure future EV infrastructure investments can leverage these learnings.

Area of Interest 10

Innovative Medium- and Heavy-Duty EV Charging and Hydrogen Fueling Infrastructure Regional Plans

The objective of this area of interest is to develop regional plans for medium-duty and heavy-duty commercial electric vehicle charging infrastructure and hydrogen infrastructure for essential freight corridors, including the ports (inland and ocean) and large freight depot locations that these freight corridors connect. Developing these plans will enable key corridors to be ready for infrastructure deployment when public or private demonstrations become available. These plans should be developed in collaboration with stakeholders such as utilities, transportation planning agencies, commercial fleet operators, truck depot owners and operators, trucking fueling providers, and community-based organizations. These regional plans should quantify the projected future electrified freight traffic in the region; identify and quantify the advanced charging infrastructure technologies to be deployed; assess the distribution grid hosting capacity, including positive and negative impacts of these charging technologies on the local and regional electric grid and mitigation strategies to address negative impacts (in conjunction with local utilities); and identify other technologies or practices (such as managed charging and the use of distributed energy resources such as stationary storage) to meet the needs of a broad base of electric commercial vehicle users.

Area of Interest 11

Addressing Critical Training Needs for Transportation Decarbonization

The objective of this area of interest is to collaborate with communities across the United States who are impacted by the clean-energy transition from an automotive/powertrain jobs or energy jobs perspective to equip this local workforce with skills necessary for participating in a new clean-energy transportation workforce. Projects should work with community-based organizations, community colleges, labor groups, or other local stakeholders to identify regional needs for training this workforce for transportation decarbonization jobs, develop or modify curricula to address skills gaps, and deliver the required training to the local workforce.

Area of Interest 12
Demonstration and Deployment – Open Topic

The objective of this area of interest is to explore novel solutions to transportation related clean energy challenges through demonstration or deployment projects not otherwise addressed in the planned FOA. This would include projects to address challenges unique to their geographic areas and solutions with potential for replication in other areas across the country.

Area of Interest 13
Transportation Energy Analysis

The objective of this area of interest is to use real-world data to develop and/or apply either new analytical models and tools or a novel approach to using existing model(s) to help identify practical approaches for connecting disadvantaged communities to electric vehicles and supporting infrastructure in addition to quantification of electric vehicles and environmental outcomes of interest. Market dynamics of interest include disadvantaged community access to electric vehicles, access to infrastructure, travel patterns, and alignment of travel patterns with electric ranges and charging opportunities. Specific tools or analysis that can support decision making are of interest.

Teaming Partner List

The DOE is compiling a Teaming Partner List to facilitate the formation of new project teams for specific areas of interest for this potential FOA. The Teaming Partner List allows organizations who may wish to participate on an application to express their interest to other applicants and to explore potential partnerships.

- Updates to the Teaming Partner List will be available in the EERE Exchange website after the FOA is published. The Teaming Partner List will be regularly updated to reflect new teaming partners who have provided their organization's teaming partner information.
- Submission Instructions: Any organization that would like to be included on this list should submit the following information: Organization Name, Contact Name, Contact Address, Contact Email, Contact Phone, Organization Type, Area of Technical Expertise, Brief Description of Capabilities, and Area of Interest.
  - Email information to DE-FOA-0002611@netl.doe.gov with the subject line "Teaming Partner Information."

Contact Us

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