

**Notice of Intent to Issue  
Funding Opportunity Announcement No.: DE-FOA-0000239**

The Department of Energy's (DOE) National Energy Technology Laboratory (NETL) intends to issue, on behalf of the DOE Office of Energy Efficiency and Renewable Energy (EERE), Vehicle Technologies Program, a Funding Opportunity Announcement (FOA) entitled "FY2010 Vehicle Technologies Program Wide Broad Agency Announcement." The FOA will involve near and mid-term projects in technology areas that support the vehicle technologies mission and goals. (See link: <http://www1.eere.energy.gov/vehiclesandfuels/>)

This Notice is issued so that interested parties are aware of the DOE's intention to issue this Funding Opportunity Announcement in the near term. Any of the information contained in this Notice is subject to change. The DOE will not entertain any questions or telephone calls at this time involving this Notice. Once the Funding Opportunity Announcement has been released, a "submit questions" feature will be defined.

The FOA may include the following Areas of Interest with specific subtopics:

**Area of Interest 1 -Advanced Fuels and Lubricants Technologies:**

**Subtopic 1(a) - Fuels and Lubricants for Advanced Combustion Regimes:**

This subtopic seeks fuel-focused research on the facilitation or enhancement of advanced combustion regime engine operation – e.g., HCCI, LTC, etc. In the most-general terms, the term "advanced combustion regimes" is intended to encompass clean and highly-efficient, liquid-fueled combustion engines. Such engines: may incorporate novel thermodynamic cycles, but shall not simply involve regurgitation of existing concepts (e.g., Miller Cycle); shall have extremely low engine-out NO<sub>x</sub> and PM as a target; and shall have efficiency similar to state-of-the-art direct injection diesel engines (i.e., approximately 45% peak thermal efficiency for light duty and greater-than 50% peak thermal efficiency for heavy duty). Also included within this subtopic are research and development projects on novel lubricant formulations expected to improve the efficiency of advanced combustion regime engines or otherwise enable their development and use.

**Subtopic 1(b)-Direct Petroleum Displacement by Liquid Alternative Fuels for Compression-Ignition Engines in Transportation**

This subtopic seeks research and development projects or demonstration activities related to renewable or alternative fuels for advanced combustion regime engines which displace petroleum-derived fuels. Domestically-sourced fuels shall be given preference in scoring applications.

**Subtopic 1(c)-Higher efficiency natural gas (CNG, LNG) engines and vehicle platforms for medium- and heavy-duty trucks and buses** – Large increases in natural gas supplies have renewed interest in natural gas as fuel for commercial vehicles. This subtopic area shall be for near- to mid- term projects for development of higher efficiency natural gas powered engine systems

## **Area of Interest 2-Lightweighting Materials:**

### **Subtopic 2(a)-Low Cost Development of Magnesium from a Domestic Source:**

This subtopic is for development of a low cost approach to making magnesium from a domestic source which would include a strategy utilizing readily available raw materials, an energy conversion approach that is clean and efficient, and a form of the product that is sufficiently pure as to be readily inserted into a value stream enabling a straightforward commercialization strategy into the vehicular market.

### **Subtopic 2(b)-Demonstration Project for a Multi-material Light Weight Vehicle as part of the Clean Energy Dialogue with Canada:**

This subtopic seeks to focus on reducing the weight of light-duty vehicles by developing: the design, build and validation of a light weight material vehicle that is 50 percent lighter weight than the standard vehicle. In addition, this project must be coordinated with Canadian entities in a manner consistent with the Clean Energy Dialogue between the US and Canada ([http://www.energy.gov/news2009/documents2009/CED\\_Report\\_to\\_Leaders.pdf](http://www.energy.gov/news2009/documents2009/CED_Report_to_Leaders.pdf))

### **Subtopic 2 (c)-Development of Low Cost Carbon Fiber:**

This subtopic shall focus on reducing the weight of the vehicle by developing: an alternative route to the formation of viable low cost carbon fiber (approximately \$5/lb or less). It is desirable but not required that the starting material not be dependent on petroleum precursors. This effort should not duplicate prior work on lignin precursors

## **Area of Interest 3-Hybrid and Electric Systems R&D for Advanced Energy Storage and Electric Drive Technologies:**

### **Subtopic 3(a)-Develop Advanced Cells for Electric Drive Vehicle Batteries:**

The purpose of this subtopic is to develop high energy or high power EDV cells that significantly exceed existing technologies in terms of performance and/or cost. Technologies of particular interest include but are not limited to extremely high energy couples for use in EVs and PHEVs with extended all electric range and high power systems that offer significant cost reductions over existing technologies for HEV applications. The main focus of this work shall concentrate at the cell and material level.

### **Subtopic 3 (b)-Improve Electric Drive Vehicle Battery Design:**

The focus of this subtopic is to expedite the development of more efficient designs and design processes for high-volume production of Li-ion batteries. Several research topics of particular interest include, but are not limited to revolutionary packaging approaches, use of CAD/CAM software for cell or battery design, and improved thermal management approaches.

### **Subtopic 3 (c)-Modular, Scalable Inverter for Advanced Electric Drive Vehicle Electric Traction Drives:**

This subtopic seeks the development of an inverter that meets specified cost, weight, volume, and efficiency targets with the added attributes of scalability and modularity. The proposed work must clearly demonstrate the commercial viability and increased value relationship in terms of reduced cost, volume, and mass.

**Subtopic 3 (d)-Motors Using No Rare Earth Permanent Magnets for Advanced EDV Electric Traction Drives:**

This subtopic is for motor technologies that eliminate the use of rare earth permanent magnets. Analysis of recent price trends and resource availability indicate cost and availability concerns of these material types. Approaches may include the use of non-rare earth magnet materials or motor technologies that do not use permanent magnets to meet the desired size, weight, and cost targets.

**Area of Interest 4-Advanced Thermoelectrics and Enabling Technologies for Energy Efficient Powertrains:**

**Subtopic 4 (a)-Solid State Thermoelectric Energy Conversion Devices:**

This subtopic is for research and development projects addressing barriers to wide market acceptance of this revolutionary technology in vehicle applications. Barriers to be addressed include; the limited capabilities to mass manufacture these devices for the automotive market, their performance in the vehicle environment, and costs associated with these devices. Significantly improved efficiency next generation vehicular thermoelectric energy devices will also require development of higher efficiency materials, improved manufacturing technology, and more effective heat exchanger design.

**Subtopic 4 (b)-Enabling Technologies for Engine and Powertrain Systems:**

This subtopic is for research and development projects addressing research, development and demonstration projects to support the achievement of breakthrough thermal efficiencies while meeting future emissions standards. Some of the enabling technologies to be considered include: low-cost, robust sensors for engine exhaust constituents and in-cylinder phenomena; waste heat recovery devices and systems; variable compression ratio mechanisms; variable valve actuation and timing mechanisms; lightweight components; reduced friction approaches; low heat rejection and thermal management approaches; low energy penalty emission controls; advanced fuel injectors; ignition systems, intake air management systems; and turbo machinery.

DOE envisions awarding multiple financial assistance awards in the form of cost-shared grants/cooperative agreements. The estimated period of performance for each award will be approximately two to three years in duration.

Non-federal cost share will be required for all recipients. The specific amount of non-federal cost share will be identified in the FOA.

DOE plans to issue the Funding Opportunity Announcement (FOA) in or around the February 2010 timeframe. The Funding Opportunity Announcement will be available for viewing at

Grants gov (<http://www.grants.gov>) and at FedConnect ([www.fedconnect.net](http://www.fedconnect.net)) Applicants are strongly encouraged to register at these sites to receive notification of announcements posted by the National Energy Technology Laboratory. When the Funding Opportunity Announcement is released, applications will only be received through Grants.gov.

In anticipation of the Funding Opportunity Announcement being released, there are several one-time actions prospective applicants must complete in order to submit an application through Grants.gov (e.g., obtain a Dun and Bradstreet Data Universal Numbering System (DUNS) number, register with the Central Contract Registry (CCR), register with the credential provider, and register with Grants.gov). Due to the likelihood of a forty-five (45) day response period, interested applicants are strongly encouraged to ensure these requirements have been met. Detailed information on the DUNS and CCR process is presented at <http://www.grants.gov/GetStarted>. Applicants may use the Grants.gov Organization Registration Checklist at <http://www.grants.gov/assets/OrganizationRegCheck.pdf> to guide them through the process. Designating an E-Business Point of Contact (EBiz POC) and obtaining a special password called an MPIN are important steps in the CCR registration process. Applicants not yet registered with CCR and Grants.gov, should allow at least 21 days to complete these requirements. It is strongly recommended that the process be started as soon as possible.

If your organization does not have a DUNS number, go to the Dun & Bradstreet (D&B) online registration located at <http://fedgov.dnb.com/webform/displayHomePage.do> to receive a number free of charge or call 1-866-705-5711

The Central Contractor Registration (CCR) collects, validates, stores, and disseminates business information about the Federal Government's trading partners in support of the contract award, grants, and the electronic payment processes.

To see if your organization is already registered with CCR, check the CCR website located at <http://www.bpn.gov/ccrsearch/scripts/search.asp>. You will be able to search CCR by using either your organization's DUNS Number or legal business name. If your organization is already registered, take note of who is listed as the organization's E-Business Point of Contact (E-Business POC). This person will be responsible for registering in FedConnect.

If your organization is not registered in CCR, go to the CCR Website at [www.ccr.gov](http://www.ccr.gov) and select the "Start New Registration" option to begin the registration process. Please allow up to 7 days for processing of your registration which includes the IRS validating your Employer Identification Number (Taxpayer Identification Number or Social Security Number). The organization's E-Business POC will be designated during the CCR registrations process. A special Marketing Partner ID Number (MPIN) is established as a password to verify the E-Business POC