

Notice of Intent No. DE-FOA-0001525

Notice of Intent to Issue Funding Opportunity Announcement No. DE-FOA-0001467

The Office of Energy Efficiency and Renewable Energy (EERE) intends to issue, on behalf of the Advanced Manufacturing Office (AMO), a Funding Opportunity Announcement (FOA) entitled “Next Generation of Electric Machines: Enabling Technologies.”

The goal of EERE’s AMO is to partner with industry, small business, universities, regional entities, and other stakeholders to identify and invest in emerging clean energy technologies. Through this FOA, AMO seeks to create future high impact manufacturing opportunities through the Next Generation of Electric Machines (NGEM) vision, which is a targeted development of high power density, high revolutions per minute motors and integrated power electronics. Specifically, this FOA targets the development of key technologies that will enable further efficiency enhancements and weight reductions in a cost effective way while addressing the limitations of traditionally used conductive metals and electrical steels

It is anticipated that the FOA may include the following Topic Areas:

High Performance Thermal and Electrical Conductor Manufacturing: Rapid improvements in nanomaterial (carbon nanotubes) research has shown the potential of three-fold improvement in the electrical and thermal properties of metallic conductors, thus, reducing stator and rotor I₂R losses significantly. This FOA seeks methods that inexpensively increase the electrical and thermal conductivity of winding metals to provide lighter motors and generators, and in general, improved efficiency and performance of next generation electric machines.

Low Loss Si Steel Manufacturing: Affordable manufacturability of electrical steel with 6.5wt% Silicon provides the optimum condition of reducing core losses without sacrificing the saturation magnetization level. The FOA seeks methods that inexpensively increase the resistivity of soft magnetic materials to provide low core losses in motors and generators, and in general, improve efficiency and performance of next generation electric machines.

Superconducting Wire Manufacturing: Breakthrough advancements in the in-field performance of second generation high temperature superconductors (HTS) makes it possible to eliminate rotor resistance (I₂R) losses while also enabling considerably higher flux densities than those observed with traditional steel-core machines. The FOA seeks methods that improve the current state of the art with respect to the performance/cost quotient of HTS.

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Other Enabling Technologies to Improve Performance (Efficiency and Power Density): This FOA seeks the development of additional technologies such as new motor topologies, low loss high speed bearings, high resolution sensors and advanced controls, improved insulation and varnishing materials, soft magnetic materials other than Si steel such as amorphous, nanocrystalline and soft magnetic composites, novel cooling mechanisms etc.

EERE envisions awarding multiple financial assistance awards in the form of cooperative agreements. The estimated period of performance for each award will be approximately 2 – 3 years.

This Notice is issued so that interested parties are aware of the EERE's intention to issue this FOA in the near term. All of the information contained in this Notice is subject to change. EERE will not respond to questions concerning this Notice. Once the FOA has been released, EERE will provide an avenue for potential Applicants to submit questions.

EERE plans to issue the FOA on or about March 2016 via the EERE Exchange website <https://eere-exchange.energy.gov/>. If Applicants wish to receive official notifications and information from EERE regarding this FOA, they should register in EERE Exchange. When the FOA is released, applications will be accepted only through EERE Exchange.

In anticipation of the FOA being released, Applicants are advised to complete the following steps, which are **required** for application submission:

- Register and create an account in EERE Exchange at <https://eere-exchange.energy.gov/>. This account will allow the user to register for any open EERE FOAs that are currently in EERE Exchange. It is recommended that each organization or business unit, whether acting as a team or a single entity, use only one account as the contact point for each submission.

Questions related to the registration process and use of the EERE Exchange website should be submitted to: EERE-ExchangeSupport@hq.doe.gov

- Obtain a Dun and Bradstreet Data Universal Numbering System (DUNS) number (including the plus 4 extension, if applicable) at <http://fedgov.dnb.com/webform>
- Register with the System for Award Management (SAM) at <https://www.sam.gov>. Designating an Electronic Business Point of Contact (EBiz POC) and obtaining a special password called an MPIN are important steps in SAM registration. Please update your SAM registration annually.
- Register in FedConnect at <https://www.fedconnect.net/>. To create an organization account, your organization's SAM MPIN is required. For more information about the SAM MPIN or other registration requirements, review the FedConnect Ready, Set, Go! Guide at

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[https://www.fedconnect.net/FedConnect/Marketing/Documents/FedConnect Ready Set Go.pdf](https://www.fedconnect.net/FedConnect/Marketing/Documents/FedConnect_Ready_Set_Go.pdf)

- Register in Grants.gov to receive automatic updates when Amendments to a FOA are posted. However, please note that applications will not be accepted through Grants.gov. <http://www.grants.gov/>. All applications must be submitted through EERE Exchange.

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