Notice of Intent No. DE-FOA-0002349

Notice of Intent to Issue
Funding Opportunity Announcement No. DE-FOA-0002252

The Office of Energy Efficiency and Renewable Energy (EERE) intends to issue, on behalf of the Advanced Manufacturing Office, a Funding Opportunity Announcement (FOA) entitled “FY20 Advanced Manufacturing Multi-topic FOA”.

AMO supports the development of technologies that significantly improve energy efficiency in manufacturing as well as foundational, cross-cutting manufacturing processes, information, and materials technologies critical to efficient and competitive domestic manufacturing. AMO’s goals are to stimulate technology innovation, improve the energy productivity of U.S. manufacturing, and enable the manufacture of cutting-edge products in the United States.

This FOA supports the achievement of AMO’s goals of enhanced productivity through innovation by focusing in three main areas: 1) next-generation manufacturing for advancing process technologies that improve energy efficiency in energy intensive and energy dependent processes; 2) modular, hybrid, and/or catalytic processes to improve energy efficiency in chemical manufacturing; and 3) connected, flexible, and efficient manufacturing facilities, products and energy systems. The FOA integrates identified research opportunities across AMO into a single funding opportunity and is intended to fund high-impact, applied research and development projects.

Within the main areas of research identified above, it is anticipated that the FOA may include the following sub-topic areas:

Efficiency Improvements in Advanced Manufacturing Processes

1) **Innovative Iron and Steelmaking Processes**
   The objective of this potential sub-topic area is to improve energy efficiency of iron and steelmaking processes, specifically through advancements that optimize electric arc furnace technology and by innovations that enable greater utilization or recycling of various co-products from steelmaking, including scrap and process gases.

2) **Enhanced Energy Efficient Drying Processes**
   The objective of this potential sub-topic is to improve the energy productivity of drying processes through the development of technology that uses low carbon energy sources.

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Proposed technology is expected to deliver additional co-benefits such as improved product properties, inherent safety improvements, and/or improved operability.

3) **Machine Learning to Optimize the Manufacturing of Large Scale, High-Rate Aerostructures**
The objective of this potential sub-topic is to leverage the Office of Science National Laboratory capabilities in machine learning and artificial intelligence to improve manufacturing efficiencies of large scale aerostructures made at high rates.

4) **Integrated Additive Manufacturing Processes for Advanced Wind Blade Production**
The objective of this sub-topic is to develop additive manufacturing enabled wind blade production techniques that are inherently scalable to large blade sizes, enable novel blade designs, and allow for flexible process and tooling configurations.

5) **Production of Silicon Carbide Ceramic Matrix Composites by Low-cost Polymer Infiltration**
The objective of this potential sub-topic is to reduce the cost of Ceramic Matrix Composites (e.g. silicon carbide and silicon nitride CMCs) through manufacturing process improvements that reduce fabrication time, porosity, fiber cost, manufacturing steps, post processing and inspection.

**Chemical Manufacturing**

1) **Advanced Chemical Manufacturing R&D**
The objective of this potential sub-topic is to improve energy efficiency in the chemical industry’s highest energy consuming products through advances in catalytic processes that are robust to variability or provide benefits through dynamic operation and optimize conversion rates, selectivity, and stability.

2) **Dynamic Catalyst Science with Data Analysis**
The objective of this potential sub-topic is to improve efficiency, and accelerate development of catalytic processes by employing innovative dynamic catalyst science coupled with data analytic tools for advanced characterization of complex industrial catalysts. This includes improving the time-resolution and modeling of operando spectroscopic reactors, deriving new kinetic characterization criteria from time-resolved transient data, and predicting catalyst stability without the need for extensive time-on-stream studies.

**Connected, Flexible, and Efficient Manufacturing Facilities and Energy Systems**

1) **Integrating Carbon Capture and Utilization into Industrial Processes**

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The objective of this potential sub-topic is to reduce the carbon intensity of manufacturing processes by lowering the barriers to deployment of carbon capture systems through the integration of these systems with industrial processes, including those capable of capturing dilute sources such as direct air capture.

2) **Flexible CHP for District Energy Systems**

The objective of this potential sub-topic is to develop and demonstrate flexible combined heat and power technology in a district energy system integrated with a renewably-fueled municipal generating station. A focus of the flexible CHP technology developed will be its ability to respond automatically and seamlessly to variations in electric power generation from non-dispatchable renewable resources.

3) **Advanced Manufacturing for Efficient Microelectronics**

The objective of this potential sub-topic is to drive energy efficiency gains in the manufacture of microelectronics. This can be achieved by developing methods to make atomically precise materials more manufacturable and by advancing technology that enables “mass customization” of subsystems.

EERE envisions awarding multiple financial assistance awards in the form of cooperative agreements. The estimated period of performance for each award will be approximately one to three 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 in mid-May, 2020 via the EERE Exchange website [https://eere-exchange.energy.gov/](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/](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.

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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 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.