Notice of Intent No. DE-FOA-0001749

Notice of Intent to Issue
Funding Opportunity Announcement No. DE-FOA-0001750

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 "Flexible Combined Heat and Power for Grid Reliability and Resiliency".

Combined Heat and Power (CHP) is a suite of predominately gas-fired distributed generation technologies that produce both electricity and thermal energy onsite, thereby providing the user with more efficient and lower cost electricity while at the same time increasing site reliability and energy security. In addition, CHP can reduce line losses and strain on grid infrastructure. The promotion of CHP is part of the EERE mission to create and sustain American leadership in the transition to a strong and prosperous America powered by clean, domestic, affordable and secure energy for the industrial, manufacturing, commercial and multifamily sectors.

Within AMO, CHP is the focus of both research and development (R&D) and Technology Partnership activities. The R&D activities are focused on researching new CHP technologies that will enable development of advanced CHP systems that support U.S. economic competitive advantage, promote economic development, instill resiliency in businesses and communities, create and maintain local energy-related jobs, and provide sustainable solutions for modernizing energy generation and delivery.

While CHP systems have largely saturated the large industrial market, where the engineering and operating staff have the needed technical expertise to support cost-effective installation and operation of large (greater than 20 Megawatt of electricity (MWe)) CHP systems, there remains substantial opportunity for small to mid-size manufacturers with electricity demand below 20 MWe[1] to adopt CHP. New research is needed so that the value of CHP can be fully realized for small to mid-sized facilities.

Our nation's electric grid is the backbone of our economy, a key factor in future economic growth, and a critical component of our energy security. Small to mid-sized CHP systems present a promising resource to provide support to the grid in the form of electricity supply, frequency regulation, reserves (capacity available if required), increased grid security, resiliency and efficiency and reduced emissions.

Ultimately the R&D will result in substantially more widespread adoption of CHP in the small to mid-sized manufacturing sector with associated improvements in manufacturing sector

[1] Anne Hampson et al., *Combined Heat and Power (CHP) Technical Potential in the United States*, U.S. DOE Washington, DC, March 2016.

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competitiveness and grid reliability. Key needs and research areas were developed in an AMO-hosted workshop[2]. In addition, AMO funded an analysis[3] led by the National Renewable Energy Laboratory on the potential for CHP to serve industrial loads as well as provide support for the electricity grid. These two documents provide the basis for the FOA requirements.

It is anticipated that the FOA may include the following Areas of Interest (AOI) to research enabling technologies for flexible CHP systems that are specifically designed to provide cost-effective support to the electric grid. The systems will enable small to mid-size manufacturers to gain the benefits of CHP systems while at the same time providing a resource to the grid so that it is more reliable, resilient and secure.

Area of Interest 1 – Power Electronics and Control Systems

The objective of this AOI is to research, develop, and test CHP system components such as power electronics and control systems, to enable the cost-effective use of new and existing CHP systems to support to the grid. These components must be compliant with grid interface requirements and capable of being implemented on new and existing CHP systems at an installed cost of ≤$1,800/kW.

Area of Interest 2 – Electricity Generation Components

The objective of this AOI is to research, develop, and test CHP system electricity generation components capable of augmenting the grid in times of high electrical demand. The components must be capable of generating between 1 and 20 MWe while switching from ≥60% to 100% electrical capacity in response to an external request from the grid.

EERE envisions awarding multiple financial assistance awards in the form of cooperative agreements.

This notice is issued so that interested parties are aware of the EERE's intention to issue a FOA in the near term. All of the information contained in this notice is subject to change. It should be noted that the NOI (DE-FOA-0001749) number and FOA number (DE-FOA-0001750) are different, as outlined in the heading on the cover page of this notice. EERE will neither respond to questions nor accept applications under 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 February 2018 via the EERE Exchange website https://eere-exchange.energy.gov/. If Applicants wish to receive official notifications and information from

[2] "R&D for Dispatchable Distributed Energy Resources at Manufacturing Sites," April, 2016 https://www.energy.gov/sites/prod/files/2016/04/f30/AMO%20Dispatchable%20DG%20and%20Manufacturing_Workshop%20Report_FINAL.PDF

[3] NREL report "Modeling the Impact of Flexible CHP on California's Future Electric Grid," https://energy.gov/eere/amo/downloads/modeling-impact-flexible-chp-california-s-future-electric-grid-january-2018

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 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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