

Notice of Intent No. DE-FOA-0001642

Notice of Intent to Issue Funding Opportunity Announcement No. DE-FOA-0001601

The Office of Energy Efficiency and Renewable Energy (EERE) intends to issue, on behalf of the Geothermal Technologies Office (GTO), a Funding Opportunity Announcement (FOA) entitled “Geothermal Deep Direct-Use Feasibility Studies.”

The Geothermal Technologies Office seeks to conduct feasibility studies of large-scale, low-temperature deep-well geothermal systems coupled with advanced direct-use applications and cascaded surface technologies whose applications will extend the reach of geothermal into geologically distinct parts of the country beyond the western U.S. These systems are referred to herein as deep direct-use or DDU.

Direct-use geothermal applications have the potential to provide cost-effective, renewable thermal energy in large portions of the U.S. The concept for DDU is to engineer large-scale, multi-application geothermal direct-use projects that can replace or be installed in lieu of conventional district heating and cooling systems; along with other cascading thermal applications such as water heating, ice making, laundry drying, pool and sauna heating, etc. If the geothermal resource temperature is sufficient, the system could also be a combined heat and power (CHP) application, with the fluid generating power from a binary unit(s) prior to the direct-use applications.

Increasing demand for net-zero energy campuses, military installations, hospital complexes, office buildings hotels, and other large energy end-uses offers great opportunities to significantly expand the impact and reach of geothermal energy applications across the U.S. This FOA seeks to advance the development of large-scale, deep direct-use applications. Applicants are encouraged to leverage data and maps developed by U.S. DOE Geothermal Play Fairway Analysis project awardees under FOA DE-FOA-0000841, Play Fairway Analysis (PFA). PFA is a technique adapted from oil and gas exploration and was funded by Department of Energy (DOE) GTO to help geothermal energy experts target the best spots for geothermal drilling by reducing uncertainties. Phase I PFA awards spanned the country, from the Aleutian Arc in Alaska to the Appalachian Basin on the East Coast. The resulting regional, basin-scale maps are intended to quantify and reduce uncertainty for geothermal energy exploration. To learn more about the PFA projects see <http://energy.gov/eere/geothermal/downloads/play-fairway-analysis-poster-session>. Data from PFA project Recipients is available from the DOE Geothermal Data Repository at <https://gdr.openei.org/>.

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Typical geothermal direct-use operations utilize a natural resource, a flow of geothermal fluid at elevated temperatures, which is capable of providing heat and cooling (via absorption chillers) to buildings, commercial and residential applications, industrial processes, greenhouses, and aquaculture ponds. DDU systems would utilize a similar temperature range of fluids, but on a much larger scale. For the purposes of this FOA, large-scale is defined as a space conditioning area greater than 10,000 square feet or having an annual thermal energy demand equal to or greater than 125 MMBTU. Any temperature fluid that can provide thermal energy to meet the intended purpose is considered applicable for direct-use. DDU applications can be systemically engineered in more densely populated areas of the country which have not been able to utilize geothermal resources to date.

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

Topic Areas:

- Topic Area 1 “DDU Feasibility Studies” will focus on the initial site selection, resource assessment, and feasibility study of DDU technology(s). Responses in this area should outline a detailed approach to completing an in depth feasibility study of a potential site to include planned thermal demands for the proposed location with supporting techno-economic analysis and detail of the thermal application. One significant anticipated outcome of the FOA will be to match low-temperature geothermal resources with thermal end-uses, expanding the reach of geothermal applications to regions of the country with temperatures below current technical capabilities for geothermal power generation.
- Topic Area 2 “DDU Community of Practice Administration and Techno-Economic Validation of DDU Projects” seeks to convene and establish a DDU Community of Practice (COP). The Community of Practice Administrator (COPA) will select models for assessing the technical and economic potential and will rank the feasibility of DDU projects.

EERE envisions awarding multiple financial assistance awards in the form of cooperative agreements. The estimated period of performance for each award will be approximately 24 months for Topic Area 1 and 36 months for Topic Area 2.

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 November 2016 via the EERE Exchange website <https://eere-exchange.energy.gov/>. If Applicants wish to receive official notifications and

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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 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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