U.S. DEPARTMENT OF ENERGY | Energy Efficiency & Renewable Energy

Notice of Intent No. DE-FOA-0001949

Notice of Intent to Issue
Funding Opportunity Announcement No. DE-FOA-0001905

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 "Energy-Water Desalination Hub."

This FOA supports the establishment of an Energy Innovation Hub in the area of Energy-Water Desalination (referred to as the "Hub") to accelerate transformational advances in science and engineering focused on reducing the energy and cost requirements of desalination to provide clean and safe water[1]. The Hub will include highly collaborative research teams, spanning multiple scientific, engineering, and where appropriate, economic and public policy disciplines. By bringing together top talent from across the full spectrum of research and development (R&D) performers—including universities, private industry, non-profits, and National Laboratories—the Hub will serve as the world-leading R&D center in Energy-Water Desalination.

The Energy-Water Desalination Hub aligns with the Department of Energy (DOE) EERE/AMO strategic goals to: 1) improve the productivity and energy efficiency of U.S. manufacturing; 2) reduce lifecycle energy and resource impacts of manufactured goods; 3) leverage diverse domestic energy resources in U.S. manufacturing, while strengthening environmental stewardship; and 4) transition DOE supported innovative technologies and practices into U.S. manufacturing capabilities.

Successful Applicants will address key technical focus areas in Energy-Water Desalination and will operate as a coordinated R&D hub of experts across industry, university, and national laboratories, as well as other key stakeholders. The Hub will pursue a cohesive, strategic R&D investment portfolio with the highest impact for energy efficiency, water efficiency, and cost reductions to enable achievement of pipe parity of desalination from a range of water sources. Pipe parity will be defined using technical, cost, and environmental success metrics such as: energy intensity (energy/m3 water); levelized cost of water ($/m3 water) including assumptions about discount rate, plant life, etc.; life cycle energy; water intensity (m3/unit of end product); degree of utilization of unconventional water or energy sources, or exploiting synergies between energy systems; environmental considerations; and water system security and resiliency (e.g., risk of disruption, # of days of lost service).

[1] FY 2017 Congressional Budget Request for the Department of Energy's Advanced Manufacturing Office

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This model will strengthen cooperation in current and future energy-water nexus R&D activities within DOE (such as Fossil, EERE, and ARPA-E) and across multiple agencies (such as DOD, DOI, USDA, and EPA). The Hub is part of DOE's broader efforts to address issues at the energy-water nexus, which includes a developing initiative to use prizes and challenges to catalyze innovation in critical water issues.

It is anticipated that the FOA may include the following Technical Areas of Interest:

1. **Materials R&D**: Materials discovery has the potential to improve both materials in specific components and in water treatment systems for desalination and related water treatment technologies, including membranes, pipes, tanks and pumps that dramatically increase their performance, efficiency, longevity, etc.
2. **New Processes R&D:** Novel technology processes and system design concepts are needed to lower cost and energy for water treatment, including new technologies related to water pre-treatment systems (e.g. upstream from the desalination unit operation) and to address associated challenges such as water reuse, water efficiency, and high-value coproducts.
3. **Modeling & Simulation Tools:** Multi-scale models and simulation tools are needed to use and inform R&D to predict performance and optimize design and operation of new desalination technologies and related water-treatment systems.
4. **Integrated Data & Analysis:** In order to consistently define, track, and achieve pipe parity performance metrics in the highest impact areas, a central, strategic, non-biased, integrated analysis and metrics tracking team will be critical to the Hub's overall success.

As envisioned, the Hub will establish a central pillar in DOE and the nation's R&D efforts in this critically important and highly multi-disciplinary field, and will have a focus on low-energy and low-cost desalination system approaches. Enabling technologies and foundational science advances may also be applicable to production of municipal drinking water, production of agricultural water supplies, and treatment of nontraditional water sources, such as produced water from oil and gas extraction.

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 July 2018 via the EERE Exchange website https://eere-exchange.energy.gov/. If Applicants wish to receive official notifications and information from

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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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