

Notice of Intent No. DE-FOA-0001612

Notice of Intent to Issue Funding Opportunity Announcement No. DE-FOA-0001455

The Office of Energy Efficiency and Renewable Energy (EERE) intends to issue, on behalf of the Water Power Technologies Office (WPTO), a Funding Opportunity Announcement (FOA) entitled “HydroNEXT FOA: Innovative Technologies to Advance Non-Powered Dam and Pumped-Storage Hydropower Development.” This FOA supports, through the WPTO Water Power Program’s HydroNEXT initiative, the development of innovative technologies that lower cost, improve performance, and promote environmental stewardship of hydropower development across two resource classes: existing non-powered dams (NPD), and pumped storage hydropower (PSH).

The overall objective of this FOA is to further the development of NPD and PSH resources by reducing capital costs and deployment timelines. These objectives will be achieved by funding projects in two topic areas. Projects awarded under Topic Area 1 will develop low-head, modular, and standard turbine/generation technologies for NPD applications that can reduce civil works activities and can operate efficiently over a range of flows. Civil works includes the infrastructure of a hydropower project, such as dams, conduits, powerhouses, tunnels, and penstocks. Under Topic Area 2, recipients will demonstrate the concept feasibility of innovative closed-loop PSH systems that can reduce development costs and timelines by applying concepts of modularity and creatively producing head differentials (e.g. pressurizing water using compressed air or weights).

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

Topic Area 1: Efficient Low-Head Hydropower Turbine/Generator Technologies with Capability to Reduce Civil Works

This topic area will focus on the development of new, low-head turbine technologies capable of producing water to wire efficiencies above 80% and operating across a range of hydraulic heads and flows. In addition to achieving high efficiencies, these technologies must also enable reduction of civil works activities when being installed at non-powered dams. Successful applicants will provide modular unit designs that will be suitable to flows from 100 cfs to 1,000 cfs and heads of 50 feet or less. These designs can be for one single unit or a small “family” of units, both capable of having modular application to a range of sites. Installation of these innovative machines should result in minimal impact to the dam’s existing civil infrastructure.

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These technologies should target capital cost reductions of 20% or higher – baseline capital costs are \$.087/kWh.

This topic area will be executed in two budget periods with a down-select process after Budget Period 1. Due to the availability of funding and program considerations, only a portion of the recipients will be selected to receive funding for Budget Period 2. The first budget period will consist of initial modeling and engineering efforts and will be followed by the second budget period with laboratory testing efforts to provide a proof-of-concept design.

Topic Area 2: Concept Feasibility of Innovative Technologies for Closed-Loop Pumped Storage Hydropower Systems

The objective of this topic area is to conceptually demonstrate the feasibility studies of innovative PSH systems that can reduce development costs and timelines. The proposed systems can utilize any number of units but should not exceed a total capacity of 100 MW and a maximum storage time of four (4) hours. These systems will be closed-loop and can be above ground, underground, or a combination of both. Qualifying systems will utilize innovative components, such as adjustable-speed units, or incorporate state-of-the-art components in an innovative way. Applicants are encouraged to propose systems that are integrated with other water systems (e.g. water supply system, desalination facilities) or energy infrastructure (e.g. co-location with wind or solar sites) to maximize resources and share infrastructure costs.

EERE envisions awarding multiple financial assistance awards in the form of cooperative agreements. For Topic Area 1, the estimated period of performance for each award will be approximately nine months in the first budget period, and 15 months in the second budget period. For Topic Area 2, the estimated period of performance for each award will be approximately 2 years.

This Notice is issued so that interested parties are aware of 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 or about July 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:

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- 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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