



**U.S. Department of Energy (DOE)
Office of Energy Efficiency and Renewable Energy
“Marine and Hydrokinetic (Wave) Testing Infrastructure Development”
Notice of Intent (NOI) Number DE-FOA-0000899**

Technology Office Director/Technology Office:

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Subject

Notice of Intent to issue Funding Opportunity Announcement No: DE-FOA-0000847

Description

The purpose of this Notice of Intent (NOI) is to provide potential applicants advanced notice of a proposed upcoming Funding Opportunity Announcement (FOA) initially titled “Marine and Hydrokinetic (Wave) Testing Infrastructure Development”. **NO APPLICATIONS WILL BE ACCEPTED THROUGH THIS NOTICE.** Prospective applicants to the FOA should begin developing partnerships, formulating ideas, and gathering data in anticipation of the issuance of this FOA. It is anticipated that this FOA will be posted to EERE Exchange in Fiscal Year 2013. Please do not respond or submit questions in response to this Notice of Intent.

DOE intends to fund two projects in the Topic Area, “Open Water, Fully Energetic Wave Test Facility.”

The proposed upcoming FOA will seek projects to complete a preliminary engineering design with cost and schedule estimates of a proposed facility. Subject to future appropriations and Technology Office priorities, DOE would announce an additional FOA for final design and for building and commissioning the facility.

The Topic Area of interest is intended to identify a site location and a recommended construct for a national wave test facility within United States (U.S.) territorial waters. The proposed facility can be a new construction or involve the design and modification of an existing facility. Infrastructure available for transporting, handling, installing, and servicing components and equipment, as well as proximity to a grid connection, should be factors in site selection. DOE envisions that the facility will have access to sufficient office space for permanent staff and visiting users, as well as conference rooms, lunch room, restrooms, computer stations, etc.

The proposed site should also have access to spaces for assembly, disassembly and instrumentation check-out of test articles prior to testing.

Each application must include organizational participants from a state(s) and/or university(ies) and at least one [DOE National Laboratory](#). The prime applicant must be a state or local government, university, or nonprofit and the site location is restricted to the United States and its Territories. Potential commercial end users of the facility may not partner due to conflict of interest.

Applicants must demonstrate capabilities and experience in the following: 1) wave energy device testing; 2) engineering design and management of large construction projects; and 3) management and operation of industrial end-user facilities.

Background

The mission of the DOE Wind and Water Power Technologies Office (WWPTO) is to research, test, and develop innovative technologies capable of generating renewable, environmentally responsible, and cost-effective electricity from U.S. water resources. These include marine and hydrokinetic (MHK) technologies that harness the energy from waves and ocean/tidal/river currents. DOE investments in these technologies aim to advance the technical readiness of MHK systems and support the development of a robust and competitive MHK industry in the United States. The Water Power Program's overarching MHK goal is to support the development and deployment of innovative MHK systems that with continued investment have the potential to be cost competitive with other forms of electricity generation.

Studies recently completed by DOE show that the maximum theoretical electric generation that could be produced from U.S. waves and tidal currents alone is approximately 1,420 terawatt-hours per year (TWh/yr) - more than a third of the nation's annual electricity usage. Of this amount, the total recoverable wave resource is estimated to be 1,170 TWh/yr along the outer continental shelf of the United States. Because of its comparable magnitude, the Technology Office is primarily focusing on wave energy as the core of its near-term strategic investments.

The global MHK industry is relatively nascent, and although some innovative wave energy designs have progressed towards commercial readiness (Technology Readiness Level [TRL] 9), none of these designs are yet optimized nor are they able to compete with other traditional forms of electricity generation. There is tremendous innovation currently taking place within the U.S. MHK industry sector. However, for the U.S. to catch up with international MHK development and accelerate the development of this important wave energy resource, continued investment in research and development, including the development of supporting test infrastructure, will be necessary.

With regard to the critical role of test facilities in accelerating the emerging MHK energy industry, a direct comparison can be made to the Department of Energy's experience in wind energy. Test facilities played a critical role in testing wind turbine designs and developing wind turbine design codes and standards prior to large scale deployment. Having a similar testing

infrastructure will be a key enabler of a successful MHK industry. MHK infrastructure must be available to test designs across the span of technology readiness levels, and needs to include sheltered (or nursery) open-water test berths. Access to world-class test facilities will accelerate technology evolution while substantially reducing technology development and demonstration costs to the industry as a whole.

Affordable access to world-class test facilities for emerging wave energy components and systems will directly accelerate development and deployment of U.S. developed technologies by: 1) reducing technical and financial risks, 2) reducing the cost of testing for individual developers and the industry as a whole, and 3) reducing the time-to-market of commercially-ready systems.

An accessible testing infrastructure reduces technical risk by enabling an incremental testing approach and providing facilities, protocols, and instrumentation for third party certification. The reduced technical risk leads to less financial risk, lower interest rates, and access to more capital that can be used to accelerate TRL progression. Similarly, access to affordable testing reduces costs for MHK firms, thereby freeing up additional financial capital for additional research and development.

As U.S. testing infrastructure directly reduces time-to-market for wave energy devices, it also accelerates TRL progression by enabling the use of an incremental testing approach that reduces the likelihood of large technology development setbacks. In addition, availability of a testing infrastructure reduces long duration barriers to technology development and deployment by providing pre-permitted nursery berth and open-water facilities and ready access to the electrical grid. A U.S. MHK testing infrastructure indirectly accelerates TRL progression by supporting ancillary MHK activities. Examples of these activities include facilitating innovation, developing international technical standards, developing knowledge centers and business corridors, and validating reference models, analysis tools, and simulation codes.

Registration Information

In anticipation of the Funding Opportunity Announcement being released, Applicants are advised to complete the following, which is **required** for application submission:

- Register and create an account on EERE Exchange at <https://eere-exchange.energy.gov/>. This account will then 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

Applicants should not wait until the last minute to begin the submission process. During the final hours before the submission deadline, Applicants may experience server/connection congestion that prevents them from completing the necessary steps in EERE Exchange to

submit their applications. **EERE will not extend the submission deadline for Applicants that fail to submit required information and documents due to server/connection congestion.**

The EERE Exchange registration does not have a delay; however, **the remaining registration requirements below could take several weeks to process and are necessary in order for a potential applicant to receive an award under this announcement.** Therefore, although not required in order to submit an Application through the EERE Exchange site, **all potential applicants lacking a DUNS number, or not yet registered with SAM or FedConnect should complete these registrations as soon as possible:**

- 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/PublicPages/FedConnect_Ready_Set_Go.pdf
- Register in Grants.gov to receive automatic updates when Amendments to this FOA are posted. However, please note that applications **letters of intent, and/or concept papers** will not be accepted through Grants.gov. <http://www.grants.gov/>. Note: Announcements regarding modifications will also be sent out through EERE Exchange.

DOE will not entertain questions at this time. Once the proposed FOA has been posted, all questions and answers related to the FOA will be publically available on EERE Exchange at: <https://eere-exchange.energy.gov/>.

Disclaimer

DOE is issuing this Notice of Intent so that interested parties are aware of DOE's intention to issue a FOA. DOE reserves the right to change the requirements of any proposed FOA, issue a FOA involving only a portion of the elements listed, or not issue a FOA at all. Any of the information contained in this Notice is subject to change. Any amounts proposed for funding are subject to the availability of Congressional appropriations.