Notice of Intent (NOI) No. DE-FOA-0002818

Notice of Intent to Issue
Funding Opportunity Announcement No. DE-FOA-0002793

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 "Marine Energy Systems Innovation at Sea".

This FOA supports marine energy resources, such as wave, tidal, and ocean currents, which are abundant, geographically diverse, energy dense, and complementary to other renewable energy sources. Significant in-water testing has occurred in recent years, both domestically and internationally, to prove performance and reliability for systems that provide utility grid-scale electricity. Marine energy can also serve the needs of many blue economy markets, including producing fresh water through desalination, servicing the power demands for aquaculture and ocean sensing, and supporting coastal resilience through microgrid functionality. This FOA supports wave powered systems innovation for desalinated water production applications, research and development for powering the blue economy markets, and a feasibility assessment for an ocean current test facility.

Recognizing the success of the Waves to Water Prize[1] in fostering a number of innovative wave power desalination technologies with a strategic focus on deployment, WPTO has formulated this FOA to build on those accomplishments and strengthen a research portfolio focused on desalination. This FOA aims to advance and commercialize designs focused on technical and logistical challenges of longer-term deployments, reliability testing across key components and sub-assemblies, and deployment-based innovation for disaster relief and small-scale community water systems.

WPTO's focus is on addressing the practical and necessary obstacles of deploying in the ocean environment by providing flexible innovation pathways through prototype demonstration, pilot scale system deployments, or specific testing of sub-systems and assemblies. This opportunity aims to build a collective community around technical and logistical issues of deployment (described in more detail in Area of Interest 1) and supports WPTO's goal to learn generalizable and translatable lessons for industry to advance the state-of-the-art in small-scale wave capture and desalinating technologies. The goal is to pursue multiple paths of physical prototype builds

[1] Waves to Water Prize

This is a Notice of Intent (NOI) only. EERE may issue a FOA as described herein, may issue a FOA that is significantly different than the FOA described herein, or EERE may not issue a FOA at all.

and advancements to narrow the technological uncertainty of marine energy devices operating in the nearshore environment.

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

Topic Area 1: Wave Powered Systems Innovation at Sea
Topic Area 1 supports the advancement and commercialization of wave powered desalination technologies. Focus areas include technical and logistical challenges of longer-term deployments and full-scale systems, and/or reliability and performance testing across sub-systems, components, and prototype systems, necessary for the advancement of disaster relief and small-scale community water systems. This opportunity will aim to build a community of solvers around common challenges, such as feasible and cost-effective launching strategies, marine operations and device performance, near-shore anchoring, mooring, and station keeping systems, accelerated fatigue cycles of critical components in oscillatory wave environments, and novel material strategies around inflatable and collapsible systems. This topic area provides two subtopics, a and b:

a: Deployment Based Innovations
This subtopic is geared towards existing system designs where a full system integration has been completed with some degree of in-water or laboratory validation. The principal focus is on deployment-based innovation to prove out robust, reliable, and survivable designs, where system challenges could see demonstrable innovation. WPTO is particularly interested in proposals testing cost-effective deployment and installation practices, logistics and marine operations, anchoring systems, and in-water performance targets. Applicants will need to emphasize how in-water testing is critical for advancing their prototype, establish key performance measures, and de-risk a next-generation system or larger scale prototype.

b: Component/Subsystem Innovations
This subtopic seeks solutions across novel components and sub-assemblies of wave powered desalination systems for disaster relief and small-scale communities. The focus will be on risk reduction and validation of novel, or critical, components within a wave powered desalination system. Component or sub-system level testing can be performed in a controlled laboratory environment or through integration into an existing wave energy converter and/or desalination system. Sub-system integration may include novel desalination systems, power take-off design and/or control strategies, mooring and anchoring solutions, seawater intake or discharge systems, pre- and post-treatment filtration systems, novel material strategies around inflatable or collapsible systems, etc.

_____

This is a Notice of Intent (NOI) only. EERE may issue a FOA as described herein, may issue a FOA that is significantly different than the FOA described herein, or EERE may not issue a FOA at all.

*Please note that these dates are tentative and subject to change.

Topic Area 2: Open Topic

This topic area is intended to be open to capture concepts or advancements needed in desalination broadly. Relevant needs might be translating concepts to early-stage technologies or pursuing cost-competitive pathways to marine powered desalination systems that scale. WPTO expects that marine energy industry stakeholders have unanticipated ideas for impactful research that directly impact marine energy powered desalination and provide a broader benefit to the research and development community and industry. WPTO will consider applications in the areas of wave energy, tidal energy, or ocean thermal energy powered desalination. Proposed technologies should advance the state of the industry and address a challenge or opportunity requiring some form of desalinated seawater, either drinking water or other water use.

The following technology development subtopics are of particular interest:

- Tidal Desalination
- Blue Economy Applications, such as aquaculture
- Larger municipal scale wave powered desalination systems
- Components for energy transfer to shore
- Other types of desalination or integration with water treatment systems

Topic Area 3: Ocean Current Test Facility

This topic area seeks to fund the necessary research and analysis to assess the feasibility of an ocean current test facility (OCTF) located off the coast of the Eastern United States. Applicants must evaluate site locations, designs, and estimated costs for a grid-connected facility that will be capable of open ocean testing of Current Energy Converter (CEC) prototypes to advance reliable, low cost, marine renewable energy. Prototype testing is essential to mature existing technologies, validate performance against analytic models, demonstrate compliance with applicable design standards, and mitigate the technical and financial risk of developing commercial 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 12-48 months, depending on topic area.

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.

_____

This is a Notice of Intent (NOI) only. EERE may issue a FOA as described herein, may issue a FOA that is significantly different than the FOA described herein, or EERE may not issue a FOA at all.

*Please note that these dates are tentative and subject to change.

EERE plans to issue the FOA on or about September 2022 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:

- Register and create an account in EERE eXCHANGE at https://eere-eXCHANGE.energy.gov. This account will allow the user to apply to any open EERE FOAs that are currently in EERE eXCHANGE.

  Beginning on July 29, 2022*, eXCHANGE will be updated to integrate with Login.gov. As of September 29, 2022*, potential applicants will be required to have a Login.gov account to access EERE eXCHANGE. As part of the eXCHANGE registration process, new users will be directed to create an account in Login.gov. Please note that the email address associated with Login.gov must match the email address associated with the eXCHANGE account. For more information, refer to the Exchange Multi-Factor Authentication (MFA) Quick Guide in the Manuals section of 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
- 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. Upon registration, SAM will automatically assign a Unique Entity ID (UEI).
- 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.

_____

This is a Notice of Intent (NOI) only. EERE may issue a FOA as described herein, may issue a FOA that is significantly different than the FOA described herein, or EERE may not issue a FOA at all.

*Please note that these dates are tentative and subject to change.