# Notice of Intent No. DE-FOA-0002510

## Notice of Intent to Issue
## Funding Opportunity Announcement No. DE-FOA-0002415

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) titled "Advancing Wave Energy Technologies through Open Water Testing at PacWave."

This FOA supports open water Research and Development (R&D) at the PacWave test site[1] that is needed to advance wave energy converter (WEC) technologies towards commercial viability. This FOA will only fund projects that will advance WEC technologies at the PacWave South test site. Projects that propose testing at the PacWave North test site will not be considered for funding.

This FOA is focused on advancing WEC systems that vary in size from utility-scale, grid-connected devices, to smaller non-utility, non-grid-connected devices that provide power for Blue Economy applications. Specifically, this FOA aims to support R&D projects across three Topic Areas (TAs). TA1 focuses on testing of WEC system designs intended for remote and microgrid applications as well as open-source WEC system that aim to generate publicly available data and knowledge to benefit the entire WEC industry. TA2 focuses on advancing WEC designs for future deployment at PacWave South. TA3 is an open topic area that will support wave energy R&D projects at PacWave South that advance WECs and supporting technologies.

The R&D performed under this FOA will be the first round of device testing performed at the PacWave South test site. Work performed under this FOA will produce open-access data that will benefit the entire WEC R&D community. Specifically, data produced by awardees that is not commercially sensitive will be made publicly available. These data will include, but are not limited to, wave, wind, and ocean current resource measurements, geotechnical measurements, and environmental monitoring measurements that will help improve WEC system designs for PacWave and reduce the costs of future deployments. WEC design and device properties must be distributed as open source.

[1] PacWave is an open ocean wave energy testing facility consisting of two sites, each located just a few miles from the deep-water port of Newport, Oregon on the ever-energetic Pacific Ocean. See the PacWave website and the "PacWave Information and Support" section for additional details - http://pacwaveenergy.org/

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In addition, this FOA seeks to encourage the participation of underserved communities and underrepresented groups. Applicants are highly encouraged to include individuals from groups historically underrepresented, in Science, Technology, Engineering, Math (STEM) on their project teams. Applicants are required to describe how their projects will incorporate diversity, equity, and inclusion objectives. Specifically, applicants are required to submit a Diversity, Equity, and Inclusion Plan that describes the actions the applicant will take to foster a welcoming and inclusive environment, support people from underrepresented groups in STEM, advance equity, and encourage the inclusion of individuals from these groups in the project; and the extent the project activities will be located in or benefit underserved communities. Further, Minority Serving Institutions, Minority Business Enterprises, Minority Owned Businesses, Woman Owned Businesses, Veteran Owned Businesses, or entities located in a underserved community that meet the eligibility requirements are encouraged to apply as the prime applicant or participate on an application as a proposed partner to the prime applicant.

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

**Topic Area 1: Testing WEC Technologies at PacWave**
This topic area is broken into two sub-topics, TA1a and TA1b. TA1a projects must advance WEC technologies intended for remote and microgrid commercial applications. TA1b projects must test an open-source WEC system and generate publicly available data and knowledge that will advance the entire WEC industry.

> **TA1a: Testing WEC Technologies for Remote and Microgrid Commercial Applications:** Examples of end uses for remote and microgrid WEC technologies include providing power for isolated and island communities, disaster recovery, and other blue economy applications. Applicants that propose to test WECs for this remote or microgrid application topic area should present a clear commercialization plan that identifies and quantifies end user needs, intended end uses for the WEC technology, and why testing as part of a TA1a project is a critical step on the technology development and commercialization pathway. Applicants must propose to test a WEC system that is pre-permitted for PacWave, as described in the "PacWave Information and PacWave Support" section.
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> **TA1b: Testing WEC Technologies for Open-Source R&D Applications:** These projects must provide publicly available WEC test data that will benefit the entire WEC R&D community. Projects must make all relevant marine energy technical project data publicly available and the WEC design and device properties must be made open-source as a project deliverable. Applicants are encouraged to propose projects that generate high quality data for numerical model validation, quantify system power performance, quantify operational loads, quantify extreme loads, and measure other relevant data that will advance the state of WEC technologies. Modular open-source systems that can

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be easily modified or used to test various WEC components or control strategies as part of future testing campaigns are encouraged. Applicants are also encouraged to consider making existing proprietary devices open-source so that they can be used for open-source testing under TA1b. A commercialization plan is not required for open-source TA1b projects. Instead, applicants must submit a stakeholder engagement plan that describes what marine energy technical data and device information they plan to make publicly available and open-source, how they will engage with the industry and R&D community to ensure the work performed provides maximum benefit. Levelized Cost of Energy (LCOE) calculations are not required for open-source TA1b projects.

**Topic Area 2: Advancing WEC Designs for PacWave**

Projects funded under TA2 must develop WEC system designs that, by the end of the award period, are ready for fabrication, deployment, and prototype testing at PacWave. The designs must incorporate the International Electrotechnical Commission (IEC) Technical Specifications (TS) and the Institute of Electrical and Electronics Engineers (IEEE) standards to ensure that designs are final and fully ready to utilize for future shipyard fabrication and open-water testing via future funding opportunities. Projects must include engineering design and analysis, numerical modeling, and any tank and laboratory testing that is needed to complete the scope and deliverables. In order to provide a high level of confidence that designs will perform as expected at PacWave-South test site, during the period-of-performance, awardees must either (1) demonstrate that the design tools and methodologies being used have been previously verified and validated or (2) perform tank or laboratory testing to verify and validate the design tools and methodologies being used.

TA2 projects that develop WEC designs for grid-connected and/or non-grid-connected applications are **both encouraged**. TA2 is seeking applications for WEC systems that are designed for remote, microgrid, and/or utility-scale applications. Accordingly, TA2 is soliciting device designs across a range of system scales, from small devices that produce as little as 100 W of annual average power in the PacWave resource, to large kW-scale systems that would be appropriate for early adopter utility-scale markets. TA2 designs can be developed to produce electricity, another relevant form of energy, or a useful product (e.g., desalinated water).

**Topic Area 3: Wave Energy R&D at PacWave**

PacWave South has been designed to advance WEC technologies through open water testing. Beyond deploying and testing WEC systems, there are numerous opportunities to leverage the PacWave facility to support R&D on system components and other supporting technologies that will advance the industry as a whole. This topic area seeks applications that directly leverage the PacWave South test facility to perform impactful research. This topic area will support projects that advance WEC systems, components, and/or supporting technologies.

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Applicants are encouraged to submit any applications that have the potential to advance the WEC industry and topics of interest include but are not limited to:

- WEC component testing in an open ocean environment. For example, projects could investigate:
  - Materials and coatings
  - Moorings, anchoring systems, and grid connection components
  - Power take off system performance
- Environmental monitoring technologies
- Instrumentation and prognostic health monitoring systems
- Wave measurement systems
- WEC-powered microgrid testing

EERE envisions multiple financial assistance awards in the form of cooperative agreements. The estimated period of performance for each award will be approximately 24-48 months.

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 2021 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 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.

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- 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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