**Marine Energy Systems Innovation at Sea**

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Hello everyone and welcome to our webinar my name is Simon Gore and I'm a technology manager at the Water Power Technologies Office. Thank you for your interest in the U.S Department of Energy's efforts on Renewable Energy, Energy Efficiency. Before we begin I'd like to draw your attention to the email address on the left hand side of this cover page. This is the official mailbox to direct all of your questions during the entire FOA process. Please do not contact EERE individual directly with questions including myself. All questions received at this mailbox are posted publicly at the Q&A section of the FOA page on EERE Exchange in an anonymous way. The official answers to your questions will typically also posted within three business days, please be careful not to submit any language that might be business sensitive, proprietary, or confidential.

NNo new information other than that provided in the FOA will be discussed in the webinar. Just to be clear there are no advantages or disadvantages to the application evaluation process with respect to participating on the webinar today. Your participation is completely voluntary.

All applicants are strongly encouraged to carefully read the funding opportunity announcement DE-FOA-0002793 and adhere to the stated submission requirements. This presentation summarizes the contents of FOA if there are any inconsistencies between the FOA and this presentation or statements from DOE personnel, the FOA is the controlling document and applicants should rely on the FOA language and see clarification by submitting a question to systemsinnovation@ee.doe.gov.

This slide shows the anticipated schedule for the FOA. the FOA has already been posted and we are conducting the FOA informational webinar now. We will cover all requirements for this FOA at later in the presentation. To quickly discuss these dates the FOA issue date was September 29 2022. Our submission deadline for concept papers is November 4th 2022 at 5 PM Eastern Time. Our submission deadline for full applications is February 24th 2023 at 5 PM Eastern Time. The expected submission deadline for replies to review your comments is April 14 2023 at 5 PM Eastern. expected date for our EERE selection notification is sometime in May 2023, and there's an expected time frame for award negation between May and September 2023. The agenda for this presentation is as follows: one we'll go over our FOA description, item two Topic Areas and Technical area of Interest, item three is going over award information, item four statement of substantial involvement, item five is cost sharing, item six is the FOA timeline, item seven is concept papers item 8, is full applications, item nine is Merit review and selection process, item 10 is our pre-selection interviews, and item 11 is registration requirements. We encourage you to have a copy of the FOA in front of you for reference as we go through the presentation.

Now for the FOA description 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. This FOA accelerates the development and field testing of wave power desalination Technologies to provide zero-carbon, affordable, and reliable sources of drinking water for disaster relief, emergency response, and small communities facing water scarcity and security issues. WPTO recognizes the success of the waves to water prize where teams participated in multi-stage in-water competition which highlighted the importance of developing robust and reliable systems, the need to address the technical and logistical issues of device deployments in the nearshore environment, and benefit of an iterative process of design and testing. This funding opportunity builds off the waves to water prize by offering multiple modes of testing scale devices or subsystems and multiple opportunities to test and learn by doing.

This table provides an overview of the three Topic Areas included in this FOA in terms of funding award duration, cost share, and the anticipated number of awards. This information we found in section 2.a.i of the FOA document in the coming slides we'll provide an overview of the technical aspects of each Topic Area.

For Topic Area 1 titled wave power desalination Systems Innovation at Sea. WPTO intends to support the further advancement and commercialization of wave power desalination Technologies by focusing on Technical and logistical challenges of longer duration deployments, (2 weeks to 26 weeks) and full-scale systems, and/or reliability and performance testing across sub-systems, components and prototype systems, necessary for the advancement of disaster relief in small-scale community water systems. This FOA will aim to build a community of solvers around common challenges such as feasible and cost-effective launching strategies, marine operations device performance, near-shore anchoring and mooring systems, accelerated fatigue cycles of critical components and oscillatory wave environments, and novel material strategies around inflatable and collapsible systems.

Topic Area one is broken into two subtopics, this slide covers subtopic 1A deployment-based Innovations. This subtopic is focused on existing systems designs where a full system integration of all components has been completed with some degree of in-water and or laboratory validation. The principal focus on the is on deployment-based Innovation to prove out robust, reliable, and survivable designs, where system challenges concede demonstrable innovation. Within this there are a number of key requirements one is the system Readiness. Applicants must have an existing WEC system design and or existing WEC (i.e., already fabricated) has achieved a Technology Readiness level of 5/6 or greater.

We also want to look at testing targets and benchmarks so any applicant must provide minimum testing targets and or agreed upon performance benchmarks. The ability to assess system performance during any project is vital and a baseline of expected performance must be established to measure progress during the project. Within this are a few particular requirements and one we've noted here is that a minimum of 350 hours of freshwater production with a max test duration of 26 weeks must be met. In addition, there are data plan requirements we expect to perform a comprehensive set of measurements to quantify system performance and loads.

In addition, for topic TA1a – Deployment-Based Innovations, there are a number of testing site considerations. As the primary focus of this announcement is to deploy prototype systems at-sea environment for disaster relief or small-scale community water solutions, the primary site considerations of interest are; a depth of 3-15 meters at the site, the distance from shore should be less than 1 kilometer, ideally any site would have some experience with permitting, so understanding permitting processes NEPA requirements and timelines, or any established site criteria or pre-permitting processes is highly encouraged. And then we’ve provided a site assessment questionnaire as part of the application process, so the completion of that is an additional requirement.

Topic Area 1 has a second subtopic 1B components of sub-assemblies. This subtopic seeks Solutions across novel components and sub-assemblies of wave power desalination systems for disaster relief in small-scale communities. The focus of this subtopic is risk reduction and validation of novel or critical components within a wave power desalination system. Component or subsystem level testing can be formed in a controlled laboratory environment or through integration into an existing wave energy converter and or desalination system. For this subtopic applicants must have an existing WEC subsystem or component i.e. already fabricated that has achieved a TRL of 3, 4 or greater. Applicants must define performance metrics or other benchmarks demonstrating how proposed technology improves upon existing designs. Applicants must define performance metrics or other benchmarks demonstrating or translating how proposed technology will integrate and improve the expected performance of a full-scale system. You must also identify minimum testing requirements and/or agreed upon performance benchmarks and established data plan. Perform a comprehensive set of measurements to quantify system performance and loads.

Topic Area 1 for both subtopics has National Laboratory support and partnership. Collaboration with NREL, the national renewable energies laboratories is encouraged. DOE has allocated funding outside of this FOA for NREL to support FOA awardees. Accordingly, applicants do not need to reserve budget to pay for NREL support out of their awarded project, though staff resources to inform and support activities on take undertaken with NREL should be planned for in the project scope. Applicants are not allowed to communicate with NREL staff about laboratory support on this FOA before FOA awards are made. Instead applicants should identify the areas in which they would benefit from NREL support in their application. For awarded projects the details and scope of the support that will be provided will be finalized during award negotiations between the awardee DOE and the institutions providing support. Questions regarding NREL capabilities should be submitted to the FOA mailbox.

Topic Area 2 Open Topic Area (Marine Energy Power Desalination). This Topic Area is intended to be open to capture concepts or advancements needed in marine energy desalination property relevant needs might be translating concepts to early-stage technologies or pursuing cost-competitive pathways to marine power desalinated systems that scale or tool/software development.

WPTO is considering applications in wave energy, tidal energy, ocean current energy, ocean thermal energy, or salinity gradient power desalination. The following subtopics are of particular interest; tidal desalination, blue economy applications such as aquaculture, municipal-scale wave power desalination systems, components for energy transfer to shore, and other types of desalination and or integration with water treatment systems.

Topic Area 3 Ocean Current Test Facility Feasibility Assessment. To potentially support the testing of marine energy current energy converters (CECs) in the open ocean. The Water Power Technology Office intends to evaluate potential site locations, designs, and estimated costs for an ocean current test facility located off the coast of the United States. It is expected that a viable grid connected facility will be capable of testing a variety of prototype CECs to advance reliable low-cost renewable energy alternatives to fossil fuel.

The proposed ocean current test facility can be new construction involved in design and modification of an existing facility. However, no physical measurements of oceanographic or geotechnical parameters are expected to be performed as part of this feasibility study. Further any proposed test site in the companies facility should support infrastructure must meet or exceed the following site location and resource requirements; site must be located in the U.S exclusive economic zone as defined in title 33 part 2 of the code of federal regulations and the resource must have an ocean current average speed of greater than 1.5 meters per second. The projects shall include both an interim detailed project review at a logical point in the project proposed by the developer and a final detailed project review with Subject Matter Experts of all deliverables. The interim detailed project review shall include a status update on required project deliverables with graph project delivers provided for review and discussion as appropriate. The final detailed project review shall address any feedback provided during the interim detailed project review with comments addressed in the final deliverables. The list of minimum expected project deliverables can be found in section I.B of the FOA.

EERE expects to make approximately 10.3 million of federal funding available for new awards under this FOA subject to the availability of appropriated funds. The average award amount is anticipated to range from 400,000 to 2,125,000 depending on the Topic Area. See slide 14 for a breakdown by Topic Area. EERE intends to fund cooperative agreements under this FOA. Cooperative agreements include substantial involvement which we will discuss next.

Because EERE is using cooperative agreements for this FOA there will be what is known as substantial involvement between EERE and the recipient during the performance of the project. I'll now read a statement of substantial involvement. EERE has substantial involvement in work performed under awards made following this FOA. EERE does not limit its involvement to the administrative requirements of the award, instead ere has substantial involvement in the direction and redirection of the technical aspects of the project as a whole. Substantial involvement includes but is not limited to the following EERE shares responsibility with the recipient for the management, control, direction, and performance of the project. EERE may intervene in the conduct or performance of work under this award for programmatic reasons. Intervention includes the interruption or modification of the conduct or performance of project activities. EERE may redirect or discontinue funding the project based on the outcome of EERE's evaluation of the project at the Go/No Go decision point(s). EERE participates in major project decision making processes.

EERE’s evaluation and selection process is shown in blue here. EERE will review concept papers, replies to reviewer comments, which we will cover later in the presentation, and full application. The green boxes represent the actions that apply to applicants throughout the FOA process.

Concept papers are required for this FOA. Concept papers are brief description of the proposed project. It allows applicants to submit their ideas with minimal time and expense. EERE will provide feedback on the proposed project so the applicant can make an informed decision whether to expend additional resources to prepare a full application. If an applicant fails to submit an eligible concept paper the applicant is not eligible to submit the full application.

Concept papers must be submitted by November 4th 2022 at 5 PM eastern time through EERE Exchange. EERE will provide applicants with either encouraged or discouraged notification. A discouraged notification conveys EERE’s lack of programmatic interest in the proposed project. An applicant who receives a discouraged notification may still submit a full application.

The full application includes a technical volume, the key technical submission - info relating to the technical content, project team members, and etc. A Form SF-424, application for federal assistance, the formal application signed by the authorized representative of the applicant.

Form SF424A budget and budget justification, a detailed budget and spend plan for the project.

A summary abstract for public release and a summary slide.

Resumes for team members letters of commitment.

A diversity equity and inclusion plan.

A cost breakdown structures, this is only relevant to Topic Areas one and two.

A technology readiness assessment, also only relevant to Topic Areas one and two.

A site assessment questionnaire, only relevant to Topic Areas one and two, and as applicable.

In addition, administrative documents are required. Examples of these are a U.S manufacturing plan, FFRDC authorization if applicable, disclosure of lobbying activities, foreign entity and foreign work waivers, if applicable, current and pending support.

For the full applications for Topic Areas one and two additional documentation. One is a cost breakdown structure, this is intended to capture the projected Capital Expenditures (CAPEX) for the project team to develop the system or subsystem level technology. Applicants must provide a description along with each projected CAPEX category to provide DOE with appropriate context and to make preliminary assessments of levelized cost of water (LCOW). In addition, a Technology Readiness Level Assessment must be submitted. For applicants to provide a self-certification of the current TRL of their technology and their projected TRL at project completion. Applicants must also include a technical description and justification of their current TRL assessment, including a discussion of previous system deployments, significant testing results, or similar evidence of TRL. The site assessment questionnaire, for applicants to provide positive acknowledgment that their proposed testing site meets FOA requirements and to describe the available energy resource and site conditions as well as available infrastructure. Examples for these submittal documents are available on EERE Exchange.

The key technical component of the full application is the technical volume which helps applicants frame the technical information that the application will be evaluated on. The technical volume provides information regarding what the project is, how the project tasks will be accomplished, and the project timetable. The technical volume is comprised of a cover page, project overview, technical description, innovation, and impact, work plan, technical qualifications and resources, and FOA specific requirements. Please note that the percentages listed here are suggested and are not mandatory.

The cover page will be a one-page document and provides basic information on their project such as title, Topic Area, points of contact, etc. The project overview constitutes approximately 10 percent of the technical volume and provides information on project background, goals, impact of EERE funding. The technical description innovation and impact section is approximately 30 of the technical volume. It provides information on project relevance and outcomes feasibility and innovation impacts. This ultimately provides the justification as to why EERE you should fund the project. The work plan is the key element to the technical volume and constitutes approximately 40 percent of the technical volume. It details the proposed milestones and project schedule if selected for award negotiations the work plan serves as the starting point when negotiating the statement of project objectives. The technical qualifications and resources section is approximately 20 of the technical volume. It provides applicants an opportunity to provide information about the proposed project team and demonstrate how the applicant will facilitate the successful completion of the proposed project. It is important to note that there are specific technical requirements for Topic Areas 1A and 1B listed in the FOA, these technical requirements are not meant to comprise their own section of the technical volume but are rather provided so the applicants are sure to include certain information within the or established sections of the technical volume. This could include things such as discussion of the anchoring and mooring strategy for TA1 applicants or a discussion to planned partnerships for integrating new WEC component designs for TA1 applicants. See section 4.D.2 of the FOA for more details.

As we previously pointed out applicants must submit full applications by February 24th 2023. EERE will conduct an eligibility review and full applications will be deemed eligible if the applicant is an eligible entrant based on section 3.A of the FOA. The applicant submitted an eligible concept paper. The cost share requirement is satisfied in section 3.B of FOA. The full application is compliant with section 3.C of FOA, and the proposed project is responsive to the FOA section 3.D of FOA. The full application meets any other eligibility requirements listed in Section 3 of the FOA.

Who is eligible to apply? This FOA has restricted eligibility requirements to the following entities DOE, NNSA, FFRDC’s are eligible to apply for funding based on Topic Area as described below. Topic Areas one and two DOE NSA FFRDCs National Laboratories are not eligible to apply as Prime recipients DOE, NNSA, FFRDCs, National Laboratories, except the National Renewable Energy Laboratory (NREL) May apply as subrecipients. Topic Area 3: DOE, NNSA, FFRDCs, National Laboratories, are NOT eligible to apply as prime recipients or subrecipients. Please note that non-profit organizations described in section 501C3 of the Internal Revenue Code of 1986 that engaged in lobby acted activities after December 1st 1995 are not eligible to apply for funding. Also, note that all prime recipients receiving funding under this FOA must be incorporated or otherwise formed under the laws of a state or territory of the United States and have a physical location for business operations in the United States, if a foreign entity applies for funding as a prime recipient it must designate in the full application a subsidiary or affiliate incorporated or otherwise formed under the laws of a state or a territory in the United States to be the prime recipient. The full application must state the nature of the corporate relationship between the foreign entity and the domestic subsidiary or affiliate. Foreign entities may request a waiver of the requirement to designate a domestic subsidiary or affiliate as the prime recipient in the full application.

Concerning multiple applications. An entity may submit more than one concept paper and full application to this FOA provided that each application describes a unique scientifically distinct project and provided an eligible concept paper was submitted for each full application.

Merit Review and Selection Process for Full Applications. The Merit Review process consists of multiple phases that each include an eligibility review and a thorough technical review. Rigorous technical reviews are conducted by reviewers that are experts in the subject matter of the FOA. Technical Merit Review criteria for full applications for each Topic Area can be found in section V.A.ii of the FOA. Ultimately, the selection official considers the recommendations of the reviewers along with other considerations such as program policy factors to make the selection decision.

Replies to reviewer comments. The full application are reviewed by experts in the FOA Topic Area. After those experts review the applications EERE will provide applicants with reviewer comments. Applicants will have a brief opportunity to review the comments and prepare a short reply to reviewer comments responding to comments however they desire. The reply to reviewer comments is due by the by the date and time provided on this slide which is April 14, 2023 at 5 PM Eastern Time. Applicants should anticipate receiving the independent reviewer comments approximately three business days before this due date. The reply to reviewer comments is an optional submission, applicants are not required to submit a reply to reviewer comments.

This is a customer-centric process that provides applicants with a unique opportunity to correct misunderstandings and misinterpretations and to provide additional data that might influence the selection process in their favor. The replies are considered by the reviewers and the selection official. Replies to reviewer comments must conform to the content and form requirements listed here, including maximum page lengths. If the reply to reviewer comments is more than three pages in length EERE will review only the first three pages and disregard any additional pages. Please see sections 4.F and 5.A.3 for additional information provided regarding replies to reviewer comments.

Pre-selection interviews. As part of the Merit Review process EERE may invite certain applicants to participate in pre-selection interviews the invited applicant will meet with EERE representatives to provide clarification on the contents of the full application and to provide EERE an opportunity to ask questions regarding the project. The information provided by applicants to EERE through the pre-selection interviews contributes to EERE's selection decisions.

The pre-selection interviews often take place in person at EERE’s offices. For some FOAs EERE will conduct interviews at a different location or conducts interview through a one-on-one conference with EERE via webinar video conference or conference call. If EERE conducts pre-selection interviews for this FOA EERE will notify the invited applicants to provide more details about the format for the interview for this FOA at that time. EERE will not reimburse applicants for travel and other expenses related to the pre-selection interviews nor will these costs be eligible for reimbursement as pre-award costs. EERE may select applicants for funding and make awards without pre-selection interviews participation in pre-selection interviews with the EERE does not signify that applicants have been selected for award negotiations.

Registration requirements. There are several one-time actions before submitting an application in response to this FOA and it is vital that applicants address these items as soon as possible, some may take several weeks and failure to complete them could interfere with an applicant's ability to apply to this FOA or to meet the negotiation deadline to receive an award if the application is selected.

System for award management. Register with the system for award management SAM. 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.

FedConnect. Register on FedConnect to create an organization account your organizations SAM MPIN is required. For more information about the SAM MPIN or the registration requirements review the FedConnect Ready Set Go guide at the FedConnect site.

Grants.gov. Register in grants.gov to receive automatic updates when amendments in this FOA are posted. However, please note that letters of intent, concept papers, and full applications will not be accepted through grants.gov.

All required submissions must come through EERE Exchange. EERE will not review or consider applications submitted through any other means.

Please see the following links for where concept papers, full applications, replies to reviewer comments must be submitted. Also note the user's guide and the link location it can be found for applying to the Department of Energy EERE Funding Opportunity Announcements.

Questions about this FOA please email systemsinnovation@ee.doe.gov.

All questions and answers related to this FOA will be posted in our on EERE Exchange. You must select this specific FOA Number in order to view the Q and A's. EERE will attempt to respond to a question within three business days unless a similar Q&A has already been posted on the website.

If you are having problems logging into EERE Exchange or uploading and submitting application documents with EERE Exchange email EERE-eXCHANGESupport@hq.doe.gov.

Include your FOA name and number in the subject line.