U.S. DEPARTMENT OF ENERGY | Energy Efficiency & Renewable Energy

Next Generation Marine Energy Systems – Durability and Survivability

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FOA Webinar

DE-FOA-0001310

May 6, 2015

Anticipated Schedule:

FOA Issue Date:	April 27, 2015
FOA Informational Webinar:	May 6, 2015
Submission Deadline for Concept Papers:	May 29, 2015 5pm ET
Submission Deadline for Full Applications:	July 1, 2015 5pm ET
Submission Deadline for Replies to Reviewer Comments:	August 13, 2015 5pm ET
Expected Date for EERE Selection Notifications:	October 2015
Expected Timeframe for Award Negotiations:	October 2015 to December 2015

Notice

- All applicants are strongly encouraged to carefully read the Funding Opportunity Announcement DE-FOA-0001310 **("FOA")** and adhere to the stated submission requirements.
- This presentation summarizes the contents of the 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 seek clarification from EERE.
- If you believe there is an inconsistency, please contact MHKFOA1310@ee.doe.gov

Agenda

1) FOA Description
2) Topic Areas/Technical Areas of Interest
3) Award Information
4) Statement of Substantial Involvement
5) Cost Sharing
6) Concept Papers
7) Full Applications
8) Merit Review and Selection Process
9) Registration Requirements
10) **Questions? E-mail MHKFOA1310@ee.doe.gov**

All answers will be posted within 3 business days to the EERE Exchange website.

FOA Problem and Objective

- Targeted Systems: Innovative MHK design systems with high performance potential compared to the state of art of todays industry.
- Problem: Need to answer questions regarding the viability of innovative and novel system designs
  - How expensive is it to build?
  - How reliable will it be when operating in the open ocean?
  - How long will it survive?

  Address these questions early in the development cycle and avoid costly failures and design iterations with prototypes at a larger scale.
- Objective: Improve the system cost characteristics (CAPEX, OPEX, Availability, and System Life) of MHK systems undergoing development for commercial application.

FOA Metrics

The FOA targets systems that have already exhibited characteristics that signal their potential economic viability under early adopter market and operational conditions. The system cost characteristics will serve as metrics for entrance and progress made by projects. More specifically, systems must exhibit favorable rating in terms of five (5) metrics:

- Annual Energy Production (AEP)
- Capital Expenditure (CAPEX)
- Operational Expenditure (OPEX)
- Availability
- System Life

Given the early stage of development for these targeted systems it is difficult to quantitatively assess the above metrics. As part of the Merit Review, reviewers will use the criteria described in Appendix E of the FOA to form a qualitative assessment of each of five (5) metrics above.

Topic Area 1

Topic Area 1: Survivable Wave Energy Converters (WEC) - up to three awards at $600K/award. Required non-federal cost share: 20%. Period of Performance (POP) of 18 months

Targets high performance WECs that have experienced either premature system failures or were evaluated as overdesigned due to poorly defined design requirements for survival. Uncertainty in survival design requirements imposes a greater than necessary factor of safety, leading to a higher LCOE.

Projects will develop a pathway for future design iterations to improve the system cost for either or both characteristics:

- Reducing Capital Expenditure, or
- Extending System Life

Topic Area 2

Topic Area 2: Marine Installation, Operations and Maintenance (IO&M) - up to three awards in Budget Period 1, $400K/award, 20% cost share, POP of 9 months. Up to two awards in Budget Period 2 and 3, $3.75M/award, 50% cost share, POP of 36 months.

Open to high performance wave and current (tidal, river, and ocean) energy converters for which improvements to installation, operations, and maintenance have been identified through prior experience. Tests often lack the instrumentation to define quantitative requirements for improvement in the next design iteration.

The objective of this topic area is to reduce the uncertainty around the cost of installation, operations and maintenance of an MHK system. Projects will develop a pathway for future design iterations to improve the system cost characteristics by:

- Reducing Capital Expenditure (primarily deployment),
- Reducing Operation Expenditure, and
- Increasing Availability

National Lab Support

- Topic Area 1: DOE expects to fund NREL/SNL for approximately 375 labor-hours each for a total 750 labor-hours to support each project team. The National Laboratories will perform Numerical Modeling Support to the extent possible within this budget. These funds do not need to be included as part of the application budget. In the application please indicate if and how this support will be used to complete the scope of the project.

- Topic Area 2 Budget Periods 2 and 3: The National Renewable Energy Laboratory will work with awardees on LCOE analysis and executing the Risk Management Framework (posted on Exchange). DOE expects to fund NREL for approximately 375 labor-hours to support each project team. These funds do not need to be included as part of the application budget.

FOA Deliverables

- Please read descriptions in the FOA
  - Section I.B
  - Section VI.D.13
- Incorporate into the workplan
- Include in the milestone tables

Non-Responsive Applications

The following types of applications will be deemed nonresponsive and will not be reviewed or considered (See Section III.D of the FOA):

- Applications that fall outside the technical parameters specified in Section I.B of the FOA, including but not limited to applications for device types other than a WEC in Topic Area 1; applications proposing systems that have not completed performance validation under controlled conditions testing
- Targeted systems that are below a technology readiness level of 4 (i.e., laboratory tested and validated model scale prototype component/process) and are not being developed towards commercial deployment;
- Applications which have already been merit reviewed and selected under the DE-FOA-001081, MHK Demonstrations at the Navy's Wave Energy Test Site, or are currently being evaluated under another DOE FOA;
- Applications proposing work that relies on the results of a DOE award that has not been completed or validated;
- Applications for proposed technologies that are not based on sound scientific principles (e.g., violates the law of thermodynamics); and,
- Applications for the development of hydropower technologies that make use of a dam, diversionary structure, or impoundment.

Award Information

Total Amount to be Awarded	**$10,500,000***
Average Award Amount	EERE anticipates making awards that range from $400,000 to $4,150,000.
Types of Funding Agreements	Cooperative Agreements, Grants, Technology Investment Agreements, Work Authorizations, and Interagency Agreements
Period of Performance	18 to 45 months
Cost Share Requirement	20% of Total Project Costs for Topic Area 1 20% of Total Project Costs for Topic Area 2, Budget Period 1 50% of Total Project Costs for Topic Area 2, Budget Periods 2 and 3

*Subject to the availability of appropriated funds

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, EERE 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 that the Go/No Go decision point.
- EERE participates in major project decision-making processes.

Cost Sharing Requirements

FOA Section III. B.:

The cost share must be at least 20% of the total allowable costs (i.e., the sum of the Government share, including FFRDC costs if applicable, and the recipient share of allowable costs equals the total allowable cost of the project) for research and development projects (Topic Area 1 and Topic Area 2, Budget Period 1) and 50% of the total allowable costs for demonstration and commercial application projects (Topic Area 2, Budget Periods 2 and 3) and must come from non-Federal sources unless otherwise allowed by law. (See 2 CFR 200.306 and 2 CFR 910.310 for the applicable cost sharing requirements.)

To assist Applicants in calculating proper cost share amounts, EERE has included a cost share information sheet and sample cost share calculation as Appendices B and C to the Funding Opportunity Announcement.

Cost Share Contributions

- Contributions must be:
  - Specified in the project budget
  - Verifiable from the Prime Recipient's records
  - Necessary and reasonable for proper and efficient accomplishment of the project
- Every cost share contribution must be reviewed and approved in advance by the Contracting Officer and incorporated into the project budget before the expenditures are incurred

Allowable Cost Share

- Cost Share must be allowable and must be verifiable upon submission of the Full Application
- Refer to the following applicable Federal cost principles:

Entity	Cost Principles
Educational Institutions	2 CFR Part 220
State, Local, and Indian Tribal Governments	2 CFR Part 225
Non-profit Organizations	2 CFR Part 230
For-profit Organizations	FAR Part 31

Allowable Cost Share

- Cash Contributions
  - May be provided by the Prime Recipient, Subrecipients, or a Third Party
- In-Kind Contributions
  - Can include, but are not limited to: personnel costs, indirect costs, facilities and administrative costs, rental value of buildings or equipment, and the value of a service, other resource, or third party in-kind contribution

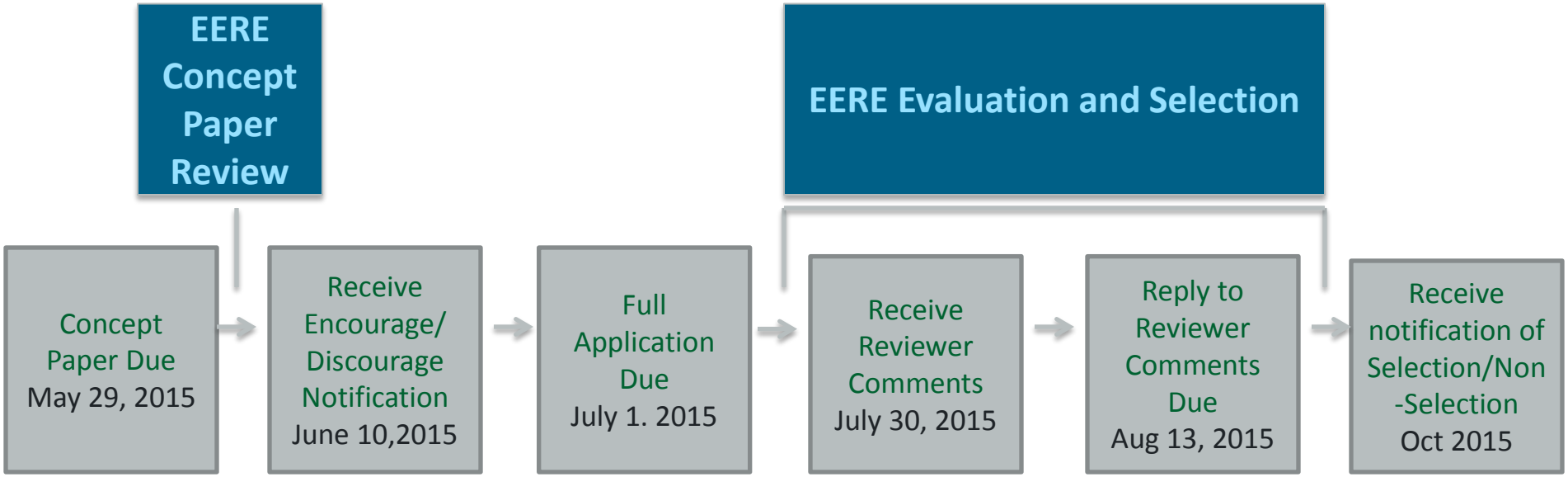
Unallowable Cost Share

- The Prime Recipient may not use the following sources to meet its cost share obligations including, but not limited to:
  - Revenues or royalties from the prospective operation of an activity beyond the project period
  - Proceeds from the prospective sale of an asset of an activity
  - Federal funding or property
  - Expenditures reimbursed under a separate Federal Technology Office
  - Independent research and development (IR&D) funds
  - The same cash or in-kind contributions for more than one project or program
  - Because FFRDCs and GOGOs are funded by the Federal Government, costs incurred by FFRDCs and GOGOs generally may not be used to meet the cost share requirement. FFRDCs may contribute cost share only if the contributions are paid directly from the contractor's Management Fee or another non-Federal source.

Cost Share Payment

- Recipients must provide documentation of the cost share contribution, incrementally over the life of the award
- The cumulative cost share percentage provided on each invoice must reflect, at a minimum, the cost sharing percentage negotiated
- In limited circumstances, and where it is in the government's interest, the EERE Contracting Officer may approve a request by the Prime Recipient to meet its cost share requirements on a less frequent basis, such as monthly or quarterly. See Section III.B.6 of the FOA.

FOA Timeline



EERE anticipates making awards by Dec 15, 2015

Concept Papers

- Applicants must submit a Concept Paper
  - Each Concept Paper must be limited to a single concept or technology
- The Concept Paper must include a technology description (See Section IV.C of the FOA)
  - The technology description is limited to 5 pages
  - The Concept Paper can also include graphs, charts, or other data (limited to 5 pages)
- Concept Papers must be submitted by May 29, 2015, 5pm ET, through EERE Exchange, and must comply with the content and form requirements in Section IV.C of the FOA
- EERE provides applicants with: (1) an "encouraged" or "discouraged" notification, and (2) the reviewer comments

Concept Paper Review

EERE evaluates the Concept Papers based on the following technical review criteria:

- **Criterion 1: Impact of the Proposed Technology Relative to State of the Art (50%)** This criterion involves consideration of the following factors:
  - Method used to identify current state of the art technology
  - If technical success is achieved, the proposed idea would significantly improve technical and economic performance relative to the state of the art.

- **Criterion 2: Overall Scientific and Technical Merit (50%)**

  This criterion involves consideration of the following factors:
  - The proposed technology is unique and innovative; and
  - The proposed approach is without major technical flaws.

Full Applications

- The Full Application includes:
  - **Technical Volume**: The key technical submission - info relating to the technical content, project team members, etc.
  - **SF-424 Application for Federal Assistance:** The formal application signed by the authorized representative of the applicant.
  - **EERE 335 Budget & Budget Justification:** a detailed budget and spend plan for the project.
  - **Subaward Budget Justification (EERE 335):** if applicable
  - **DOE/NNSA FFRDC Budget:** if applicable
  - **Summary for Public Release**
  - **Summary Slide**
  - **Administrative Documents:** E.g., U.S. Manufacturing Plan, FFRDC Authorization (if applicable), Disclosure of Lobbying Activities, signed Letter of Assurance, etc.
  - **Risk & Reliability Checklist**

Full Applications: Technical Volume Content

- **Technical Volume: the key technical component of the Full Application**

Content of Technical Volume	Suggested % of Technical Volume
Cover Page	
Project Overview	10%
Technical Description, Innovation and Impact	25%
Workplan	50%
Technical Qualifications and Resources	15%

Full Application Eligibility Requirements

- Applicants must submit a Full Application by July 1, 2015
- Full Applications are eligible for review if:
  - The Applicant is an eligible entity Sections III.A and III.E of FOA;
  - The Applicant submitted an eligible Concept Paper;
  - The Cost Share requirement is satisfied Section III.B of FOA;
  - The Full Application is compliant Section III.C of FOA; and
  - The proposed project is responsive to the FOA Section III.D of FOA
  - The Full Application meets any other eligibility requirements listed in Section III of the FOA.

Who's Eligible to Apply?

Eligible applicants for this FOA include:

1. Individuals
2. Domestic Entities
3. Foreign Entities
4. Incorporated Consortia
5. Unincorporated Consortia

For more detail about each eligible applicant, please see Section III.A of the FOA for eligibility requirements

Nonprofit organizations described in Section 501(c)(4) of the Internal Revenue Code of 1986 that engaged in lobbying activities after December 31, 1995, are not eligible to apply for funding.

Multiple Applications

Applicants may only submit one Concept Paper and one Full Application for consideration under this FOA. The Concept Paper and Full Application can only address one of the two topic areas identified in Section I.B. If an applicant submits more than one Concept Paper or Full Application, EERE will only consider the last timely submission for evaluation. Any other submissions received listing the same applicant will be considered non-compliant and not eligible for further consideration.

This limitation does not prohibit an applicant from collaborating on other applications (e.g., as a potential Subrecipient or partner) so long as the entity is only listed as the Prime Applicant on one Concept Paper and Full Application submitted under this FOA.

Merit Review and Selection Process (Full Applications)

- The Merit Review process consists of multiple phases that each include an initial eligibility review and a thorough technical review
- Rigorous technical reviews are conducted by reviewers that are experts in the subject matter 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 decisions

Technical Merit Review Criteria

Criterion 1: Technical Merit, Innovation, and Impact (50%)

Technical Merit and Innovation

- Extent to which the proposed technology or process is innovative and has the potential to advance the state of the art;
- Degree to which the current state of the technology and the proposed advancement are clearly described;
- Extent to which the application specifically and convincingly demonstrates how the applicant will move the state of the art to the proposed advancement;
- Sufficiency of technical detail in the application to assess whether the proposed work is scientifically meritorious and revolutionary, including relevant data, calculations and discussion of prior work in the literature with analyses that support the viability of the proposed work; and
- The potential of the proposed technology to have broad impact to the entire industry.

Impact of Technology Advancement

- How the project supports the topic area objectives and target specifications and metrics; and
- The potential impact of the project on advancing the state of the art.

Technical Merit Review Criteria - Continued

Criterion 2: Project Research and Commercialization Plan (30%)

Research Approach and Workplan

- Degree to which the approach and critical path have been clearly described and thoughtfully considered;
- Degree to which the task descriptions are clear, detailed, timely, and reasonable, resulting in a high likelihood that the proposed Workplan will succeed in meeting the project goals; and
- The degree of rigor demonstrated in the research plan for testing and demonstrating the effectiveness of the proposed technology.

Identification of Technical Risks

- Discussion and demonstrated understanding of the key technical risk areas involved in the proposed work, and the quality of the mitigation strategies to address them.

Technical Merit Review Criteria - Continued

Criterion 2, Continued

Baseline, Metrics, and Deliverables

- The level of clarity in the definition of the baseline, metrics, and milestones; and
- Relative to a clearly defined experimental baseline, the strength of the quantifiable metrics, milestones, and a mid-point deliverables defined in the application, such that meaningful interim progress will be made.

Market Transformation Plan

- Identification of target market, competitors, and distribution channels for proposed technology along with known or perceived barriers to market penetration, including mitigation plan; and
- Comprehensiveness of commercialization plan including but not limited to product development and/or service plan, commercialization timeline, financing, product marketing, legal/regulatory considerations including intellectual property, infrastructure requirements, Data Management Plan, U.S. manufacturing plan etc., and product distribution.

Technical Merit Review Criteria - Continued

Criterion 3: Team and Resources (20%)

- The capability of the Principal Investigator(s) and the proposed team to address all aspects of the proposed work with a good chance of success. Qualifications, relevant expertise, and time commitment of the individuals on the team;
- The sufficiency of the facilities to support the work;
- Degree to which the proposed consortia/team demonstrates the ability to facilitate and expedite further development and commercial deployment of the proposed technologies;
- Level of participation by project participants as evidenced by letter(s) of commitment and how well they are integrated into the Workplan; and
- Reasonableness of budget and spend plan for proposed project and objectives.

Replies to Reviewer Comments

- EERE provides applicants with reviewer comments
- Applicants are not required to submit a Reply - it is optional
- To be considered by EERE, a Reply must be submitted by Aug 13, 2015 5pm ET and submitted through EERE Exchange
- Content and form requirements:

Section	Page Limit	Description
Text	2 pages max	Applicants **may respond to one or more reviewer comments** or supplement their Full Application.
Optional	1 page max	Applicants may use this page however they wish; text, graphs, charts, or other data to respond to reviewer comments or supplement their Full Application are acceptable.

Selection Factors

The Selection Official may consider the merit review recommendation, program policy factors, and the amount of funds available in arriving at selections for this FOA.

Program Policy Factors

- The Selection Official may consider the following program policy factors in making his/her selection decisions:
  - The degree to which the proposed project, including proposed cost shares, optimizes the use of available EERE funding to achieve programmatic objectives;
  - The level of industry involvement and demonstrated ability to commercialize energy or related technologies;
  - Technical, market, organizational, and environmental risks associated with the project;
  - Whether the proposed project is likely to lead to increased employment and manufacturing in the United States;
  - Whether the proposed project will accelerate transformational technological advances in areas that industry by itself is not likely to undertake because of technical and financial uncertainty;
  - Whether the proposed project will advance the goals of the Climate Action Champion initiative, as committed to by the designated Champion pursuant to its designation agreement. The Climate Action Champion initiative goals include improving climate resilience and reducing greenhouse gas emissions.
  - The degree to which all awards made under this FOA exhibit geographic diversity; and
  - The degree to which all awards made under this FOA exhibit technological diversity.

Registration Requirements

- To apply to this FOA, Applicants must register with and submit application materials through EERE Exchange: https://eere-Exchange.energy.gov
- Obtain a "control number" at least 24 hours before the first submission deadline
- Although not required to submit an Application, the following registrations must be complete to received an award under this FOA:

Registration Requirement	Website
DUNS Number	http://fedgov.dnb.com/webform
SAM	https://www.sam.gov
FedConnect	https://www.fedconnect.net
Grants.gov	http://www.grants.gov

Means of Submission

- Concept Papers, Full Applications, and Replies to Reviewer Comments must be submitted through EERE Exchange at https://eere-Exchange.energy.gov
  - EERE will not review or consider applications submitted through other means
- The Users' Guide for Applying to the Department of Energy EERE Funding Opportunity Announcements can be found at https://eere-Exchange.energy.gov/Manuals.aspx

Key Submission Points

- Check entries in EERE Exchange
  - Submissions could be deemed ineligible due to an incorrect entry
- EERE strongly encourages Applicants to submit 1-2 days prior to the deadline to allow for full upload of application documents and to avoid any potential technical glitches with EERE Exchange
- Make sure you hit the submit button
  - Any changes made after you hit submit will un-submit your application and you will need to hit the submit button again
- For your records, print out the EERE Exchange Confirmation page at each step, which contains the application's Control Number

Applicant Points-of-Contact

- Applicants must designate primary and backup points-of-contact in EERE Exchange with whom EERE will communicate to conduct award negotiations
- It is imperative that the Applicant/Selectee be responsive during award negotiations and meet negotiation deadlines
  - Failure to do so may result in cancellation of further award negotiations and rescission of the Selection

Questions

- Questions about this FOA? Email *MHKFOA1310@ee.doe.gov*
- All Q&As related to this FOA will be posted on EERE Exchange
  - You must select this specific FOA Number in order to view the Q&As
  - EERE will attempt to respond to a question within 3 business days, unless a similar Q&A has already been posted on the website
- Problems logging into EERE Exchange or uploading and submitting application documents with EERE Exchange? Email EERE-ExchangeSupport@hq.doe.gov.
  - Include FOA name and number in subject line