

## Modifications

All modifications to the Request for Information are **[HIGHLIGHTED]** in the body of the RFI.

Mod. No.	Date	Description of Modification
0001	5/30/2018	Page 7 - Changed RFI Closing Date from June 26th to July 31st

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Marine and Hydrokinetic Technologies: Maritime Markets Report  
RFI#: DE-FOA-0001885

DATE: April 27, 2018  
SUBJECT: Request for Information (RFI)

### **Description**

This Water Power Technologies Office (WPTO) RFI contains questions related to the content in the Marine and Hydrokinetic Technologies: Maritime Markets Draft Report. This report provides analysis of the current economic and technical landscapes for 12 maritime markets where applications may exist for marine and hydrokinetic (MHK) technologies. The 12 markets are: Ocean Observations, Unmanned Underwater Vehicles / Autonomous Underwater Vehicles Recharge, Data Centers, High Cost Utility Grids, Isolated Community Grids, Canal Power, Aquaculture, Algae, Desalination of Seawater, Seawater Mining, Shoreline Protection, and Disaster Relief and Recovery. WPTO is seeking feedback on the contents of the draft report, as well as input on the value of each market and any specific recommendations on next steps and future extensions of the analytical efforts to investigate potential future markets.

### **Background**

Hydropower and marine and hydrokinetic (MHK) energy generate renewable electricity that supports domestic economic prosperity and energy security while enhancing the reliability and resiliency of the U.S. power grid. MHK energy technologies convert the energy of waves, tides, and river and ocean currents into electricity. Resource assessments show the U.S. has 1,250–1,850 terawatt-hours per year (TWh/yr) of untapped, technically extractable MHK resource potential, equivalent to nearly 30 percent of total electricity generation in the U.S. Developing just one-sixth of the available wave energy in the five Pacific states could power more than five million homes. MHK is a predictable, forecastable resource with generation patterns typically complimentary to other renewable resources such as onshore wind and solar, enhancing its potential to augment grid stability. Industry deployment of MHK technologies for bulk power generation is nascent, and significant research and development is required to realize cost-competitiveness at the utility scale for MHK technologies. However, there are a number of alternate application areas that could provide industry with opportunities to develop and deploy MHK technologies in the near-term.

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In addition to ultimately providing utility-scale power, marine and hydrokinetic technologies have the opportunity to provide on-site, reliable, least cost power for a wide range of ocean applications. Understanding the specific requirements of these industries and applications and the implications for system design and operations are a critical step in determining DOE R&D priorities, optimizing devices, and effectively attracting investment to the sector.

## Purpose

The purpose of this RFI is to solicit feedback from industry, academia, research laboratories, government agencies, and other stakeholders on the associated draft report on maritime markets for MHK technologies. The Office of Energy Efficiency and Renewable Energy (EERE) is specifically interested in information on the “Request for Information Categories and Questions” section below. This is solely a request for information and not a Funding Opportunity Announcement (FOA). EERE is not accepting applications.

## Disclaimer and Important Notes

This RFI is not a Funding Opportunity Announcement (FOA); therefore, EERE is not accepting applications at this time. EERE may issue a FOA in the future based on or related to the content and responses to this RFI; however, EERE may also elect not to issue a FOA. There is no guarantee that a FOA will be issued as a result of this RFI. Responding to this RFI does not provide any advantage or disadvantage to potential applicants if EERE chooses to issue a FOA regarding the subject matter. Final details, including the anticipated award size, quantity, and timing of EERE funded awards, will be subject to Congressional appropriations and direction.

Any information obtained as a result of this RFI is intended to be used by the Government on a non-attribution basis for planning and strategy development; this RFI does not constitute a formal solicitation for proposals or abstracts. Your response to this notice will be treated as information only. EERE will review and consider all responses in its formulation of program strategies for the identified materials of interest that are the subject of this request. EERE will not provide reimbursement for costs incurred in responding to this RFI. Respondents are advised that EERE is under no obligation to acknowledge receipt of the information received or provide feedback to respondents with respect to any information submitted under this RFI. Responses to this RFI do not bind EERE to any further actions related to this topic.

## Proprietary Information

Because information received in response to this RFI may be used to structure future programs and FOAs and/or otherwise be made available to the public, **respondents are strongly advised to NOT include any information in their responses that might be considered business sensitive, proprietary, or otherwise confidential.** If, however, a respondent chooses to submit

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business sensitive, proprietary, or otherwise confidential information, it must be clearly and conspicuously marked as such in the response.

Responses containing confidential, proprietary, or privileged information must be conspicuously marked as described below. Failure to comply with these marking requirements may result in the disclosure of the unmarked information under the Freedom of Information Act or otherwise. The U.S. Federal Government is not liable for the disclosure or use of unmarked information, and may use or disclose such information for any purpose.

If your response contains confidential, proprietary, or privileged information, you must include a cover sheet marked as follows identifying the specific pages containing confidential, proprietary, or privileged information:

**Notice of Restriction on Disclosure and Use of Data:**

Pages [List Applicable Pages] of this response may contain confidential, proprietary, or privileged information that is exempt from public disclosure. Such information shall be used or disclosed only for the purposes described in this RFI DE-FOA-0001885. The Government may use or disclose any information that is not appropriately marked or otherwise restricted, regardless of source.

In addition, (1) the header and footer of every page that contains confidential, proprietary, or privileged information must be marked as follows: “Contains Confidential, Proprietary, or Privileged Information Exempt from Public Disclosure” and (2) every line and paragraph containing proprietary, privileged, or trade secret information must be clearly marked with double brackets or highlighting.

**Evaluation and Administration by Federal and Non-Federal Personnel**

Federal employees are subject to the non-disclosure requirements of a criminal statute, the Trade Secrets Act, 18 USC 1905. The Government may seek the advice of qualified non-Federal personnel. The Government may also use non-Federal personnel to conduct routine, nondiscretionary administrative activities. The respondents, by submitting their response, consent to EERE providing their response to non-Federal parties. Non-Federal parties given access to responses must be subject to an appropriate obligation of confidentiality prior to being given the access. Submissions may be reviewed by support contractors and private consultants.

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## Request for Information: Sections, Categories, and Questions

**Section A):** Questions in the following section are primarily targeted toward respondents with experience and expertise in the industries or applications marine energy may be able to serve (no direct experience with marine energy is required to provide valuable input)

**Category 1:** Feedback on Gathered Information

1. Does the information gathered within the associated maritime markets draft report serve to appropriately characterize each industry or application? Are there important characteristics or details missing?
2. Are the opportunities for the application of MHK technologies to the various potential market areas well characterized and reasonable?
3. Is additional information needed to better characterize any potential market or MHK application identified in the draft report?

**Category 2:** Comparison of Potential Market Opportunities

1. Which of the potential industries or applications do you believe have greater or lesser opportunity to make use of MHK technologies? Why?
2. For any potential industry or application identified with high potential / opportunity to make use of MHK technologies, please identify the most important value(s) that MHK could bring to bear in meeting the needs of a specific market area.

**Category 3:** Power and Energy Needs

1. What are the most important power and energy needs for your device or technology?
2. What potential characteristics of MHK technology (continuous power, distance from shore, mobility, surface expression, lack of maintenance, etc.) are you most interested in for the market opportunity (s) or application you are pursuing? Please rank specific characteristics in order of importance for your market and your application.
3. What technical specifications does an MHK device need to demonstrate in order for you to select it for power?
4. What kinds of characteristics constitute deal breakers within your process for selecting your power sources?

**Category 4:** Recommendations for Next Steps

1. Which of these potential market opportunities would you want to see a DOE investment in and why?
2. Are there any organizations within the market opportunities that DOE should either engage or partner with?
3. What additional information about MHK would you like to know?

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4. What would be the most useful action(s) that WPTO could take to provide you with information about MHK that you need?
5. Is there a specific name that should be used to broadly refer to maritime markets for MHK?

**Section B):** The following section contains content geared toward audiences within the MHK industry

**Category 1:** Feedback on Gathered Information

1. Does the information gathered within the associated maritime markets draft report serve to appropriately characterize the opportunities for the application of MHK technologies to the various potential market areas?
2. Is the information gathered within the draft report accurate?
3. Is additional information needed to better characterize any potential market opportunity identified in the draft report?

**Category 2:** Comparison of Potential Market Opportunities

1. Which of the potential market areas do you believe have greater or lesser opportunity to make use of MHK technologies? Why?
2. For any potential market areas identified with high potential / opportunity to make use of MHK technologies, please identify the most important value(s) that MHK could bring to bear in meeting the needs of a specific market area.
3. If you were to deploy an MHK device within any of the potential markets, what kinds of lessons learned could be potentially scaled up and applied toward grid-scale applications?

**Category 3:** Potential Design Implications

1. MHK devices optimized for maritime markets will have both similarities and differences for devices optimized for a grid market. What subsystems of a grid scale MHK device can be matured and de-risked by an MHK device that has been designed for a maritime market application? How would this be done?
2. What subsystems of a grid scale MHK device cannot be matured and de-risked by a maritime market application MHK device and why?
3. Some market opportunities will be best suited for a low resource potential environment. How will the devices be different than a device designed for a grid intensity market?
4. Some market opportunities will have equipment and infrastructure in close proximity to MHK devices. What additional MHK device design considerations would you anticipate?
5. If applicable, please elaborate on any additional design implications for MHK devices designed for maritime market applications.

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#### Category 4: Recommendations for Next Steps

1. What would be the most useful action(s) that WPTO could take to capitalize on opportunities for MHK technologies within any of the potential associated markets?

#### Request for Information Response Guidelines

Responses to this RFI must be submitted electronically to MHKRFI@ee.doe.gov no later than 5:00pm (ET) on **July 31<sup>st</sup>**, 2018. Responses must be provided as attachments to an email. It is recommended that attachments with file sizes exceeding 25MB be compressed (i.e., zipped) to ensure message delivery. Responses must be provided as a Microsoft Word (.docx) attachment to the email, 12 point font, 1 inch margins. Only electronic responses will be accepted.

Please identify your responses by responding to a specific question or topic within a section if applicable. Responses should list the specific page number, and should be identified as one of three categories:

1. **Critical:** Critical comments indicate that the document as a whole contains major areas of incorrect, inconsistent or missing information and serves as a recommendation that the document should not be finalized in its present form until the comment or comments are addressed. Critical comments must contain suggested changes in the content to merit consideration.
2. **Substantive:** A substantive comment is provided because a section in the document appears to be or is potentially unnecessary, incorrect, misleading, confusing, or inconsistent with other sections. A substantive comment must contain the suggested changes in the content to merit consideration.
3. **Administrative:** An administrative comment corrects what appears to be a typographical, format, or grammatical error. If such errors change the intended meaning of the text, the entry should be designated as substantive. Administrative comments must contain the suggested changes in the content to merit consideration.

Respondents may answer as many or as few questions as they wish, or provide additional information they believe is useful but not directly in response to any of the above questions.

EERE will not respond to individual submissions or publish publicly a compendium of responses. A response to this RFI will not be viewed as a binding commitment to develop or pursue the project or ideas discussed.

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Respondents are requested to provide the following information at the start of their response to this RFI:

- Company / institution name;
- Company / institution contact;
- Contact's address, phone number, and e-mail address.

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