Request For Information DE-FOA-0002943
Offshore Wind Centers of Excellence and Synergies between Offshore Wind, Marine Energy, and Aquaculture

DATE: 2/13/2023
SUBJECT: Request for Information (RFI)

Description

This is a Request for Information issued by the U.S. Department of Energy's (DOE) Wind Energy Technologies Office (WETO) and Water Power Technologies Office (WPTO), on behalf of the Office of Energy Efficiency and Renewable Energy (EERE). The intent of this RFI is to obtain public input on two topics related to offshore and ocean renewable energy as directed by FY23 Congressional Appropriations. See Explanatory Statement at Congressional Record- Senate, Dec. 20, 2022, page S8350.

Topic Area 1 - Offshore Wind Energy Centers of Excellence (COE): Congress has directed DOE to fund "Centers of Excellence focused on offshore wind energy engineering, infrastructure, supply chain, transmission, and other pertinent issues required to support offshore wind in the U.S.." These university-based Centers will develop regional and national strategies to support research, curriculum development, and fellowships aimed at increasing U.S. university offshore wind workforce development capacity. Centers of Excellence in offshore wind are intended to accelerate and maximize the effectiveness, reliability, and sustainability of U.S. offshore wind deployment and operation through partnership with institutions of higher education, research institutions, national laboratories, the private sector, and state and local-level public sector representatives relevant to emerging commercial scale offshore wind development. This RFI will inform the structure and capabilities of the potential university-based Centers of Excellence.

Topic Area 2 - Offshore Renewable Energy and Aquaculture: Congress has directed DOE to "support university-led research projects related to resource characterization, site planning, aquaculture assessments, community outreach, and planning for long term environmental monitoring for applications of marine energy and offshore wind technologies to support sustainable, scalable aquaculture production." This RFI will further the understanding of options for aquaculture to support offshore wind deployment, as well as the potential of using marine energy to power aquaculture production. DOE is requesting more information on opportunities, feasibility, and key challenges in this topic area in order to maximize the utility of future investments.

This is a Request for Information (RFI) only. EERE will not pay for information provided under this RFI and no project will be supported as a result of this RFI. This RFI is not accepting applications for financial assistance or financial incentives. EERE may or may not issue a Funding Opportunity Announcement (FOA) based on consideration of the input received from this RFI.

It is envisioned that future WETO/WPTO efforts support the planned development of offshore renewable energy projects in U.S. waters off the U.S. coasts and Great Lakes, while also maximizing positive impacts within coastal communities to ensure the benefits from clean power generation are more equitable.

Background

The links below are intended to provide supplementary information about the strategies associated with advancing offshore wind energy in the U.S., as well as the current challenges associated with workforce development.

Department of Energy Offshore Wind Energy Strategies Report: This report outlines strategies to accelerate and maximize the effectiveness, reliability, and sustainability of offshore wind energy deployment and operation in the U.S. and is meant to provide information on barriers impeding offshore wind energy deployment and effective strategies to facilitate successful industry growth.

Power Sector, Supply Chain, Jobs, and Emissions Implications of 30 Gigawatts of Offshore Wind Power by 2030: This report summarizes the authors' analysis, focusing on the near- (through 2030) and long-term (through 2050) implications of deploying 30 gigawatts of offshore wind energy by 2030. Specifically, the authors assessed impacts on power sector evolution, offshore wind supply chain and infrastructure, and offshore wind workforce needs in the U.S.

The Wind Energy Workforce in the U.S.: Training, Hiring, and Future Needs: The National Renewable Energy Laboratory (NREL) published this report to provide a national assessment of the wind industry workforce and hiring needs and to uncover educational pathways that would help close any gaps. In the report, researchers identified a notable disparity: students are graduating with degrees specific to the wind industry, but they're having difficulty getting hired. At the same time, the wind industry is reporting difficulty in finding qualified applicants. This gap between students and industry highlights the need for increased awareness about wind energy occupations and future analysis on training opportunities that are needed to fill the rising demand for new workers to support the industry.

Powering the Blue Economy: Exploring Opportunities for Marine Renewable Energy in Maritime Markets: Through the development of this report, WPTO highlights potential markets for marine energy technologies beyond the national grid, applications where marine energy provides advantages and solutions to energy limitations. Chapter 4 provides an initial examination of the feasibility of marine energy to power aquaculture.

Purpose

The purpose of this RFI is to solicit feedback from industry, academia, research laboratories, government agencies, and other stakeholders on issues related to two topic areas: 1) potential structure and capabilities of Centers of Excellence focused on offshore wind and 2) potential synergies between aquaculture production, offshore wind energy, and marine energy. 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.

Confidential Business Information

Pursuant to 10 CFR 1004.11, any person submitting information that he or she believes to be confidential and exempt by law from public disclosure should submit via email, postal mail, or hand delivery two well-marked copies: one copy of the document marked “confidential” including all the information believed to be confidential, and one copy of the document marked “non-confidential” with the information believed to be confidential deleted. Submit these documents via email or on a CD, if feasible. DOE will make its own determination about the confidential status of the information and treat it according to its determination.

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, non-

discretionary 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.

Request for Information Topics, Categories and Questions

Topic 1: Offshore Wind Energy Centers of Excellence (COE)

Centers of Excellence (COE) are nexuses of subject matter expertise within specific focus areas that conduct research, provide insight, and develop best practices and innovative solutions. Research has highlighted supply gaps with current expected offshore wind workforce development—to meet the goal of reaching 30 gigawatts (GW) of offshore wind energy by 2030, the offshore wind energy industry must significantly grow its workforce.

Responses within this topic should focus on the role, capabilities, and needs of a university-based Center of Excellence dedicated to advancing offshore wind energy workforce development through solving challenges related to the academia-to-offshore wind pipeline (i.e. the recruitment of students and training of BAs, MAs, and PhDs in relevant fields to rapidly support key industry roles and the ability for graduates to find placement within the field of offshore wind energy).

Research

1. What are the specific current and future research needs (with particular attention paid to the Wind Energy Strategies Report) that are best served by university-based research efforts in order to support the deployment of offshore wind in the U.S.? What strategies or best practices should be included in the framework of a COE to ensure research efforts support the enhancement of the academia-to-offshore wind energy pipeline?

Education and Workforce

2. In context of The Wind Energy Workforce in the U.S.: Training, Hiring, and Future Needs, are there specific higher-level education gaps that have not been identified? How can a COE work to improve the academia-to-offshore wind pipeline and create programs that lessen existing gaps in higher education or increase the efficacy of transitioning qualified graduates into offshore wind energy positions?

Partnership

3. How can a COE collaborate with the private sector; local, state, and federal public sector; research institutions; and communities to advance the development of research and workforce? Is there a preferred organizational structure that would support the

integration of multiple potential academic, industry, and governmental partners? What unique role would a COE play that is currently being unfilled by existing potential partners?

Self-supporting Center

4. Are there effective, existing models of government-seeded, university-based centers that achieved financial sustainability that can be looked to as examples? Are there key characteristics that have made them successful? What key features, characteristics, commitments, or supports should be considered by DOE in the development of an offshore wind COE to help ensure long-term sustainability?

Location and Expertise

5. If multiple COEs are funded, would it be more effective for the centers to specialize in specific expertise related to offshore wind energy, or for the centers to prioritize the needs of the region in which the center is based (i.e., east/west/gulf/great lakes)?

Equity

On January 20, 2021, President Biden signed Executive Order 13985 - Advancing Racial Equity and Support for Underserved Communities Through the Federal Government. The E.O. defines "equity" to mean the consistent and systematic fair, just, and impartial treatment of all individuals, including individuals who belong to underserved communities that have been denied such treatment. Discussion of energy equity should focus on how a COE could drive equitable access to, participation in, and distribution of the benefits produced from successful technology innovations to disadvantaged communities and groups.

6. What are critical steps an offshore wind COE could take to ensure equity concerns are being addressed in the development and enhancement of the academia-to-offshore wind workforce pipeline? What are key equity-aligned review criteria that DOE should use to evaluate COE proposals to ensure they address equity and inclusion concerns in their own design?

Topic 2: Offshore Renewable Energy and Aquaculture Synergies

The Department of Energy's Wind Energy Technologies Office (WETO) supports offshore wind research and development of fixed bottom and floating offshore wind technologies off the U.S. coasts and Great Lakes. The Department of Energy's Water Power Technologies Office (WPTO) supports research and development of marine energy, which is defined as renewable power harnessed from ocean waves, tides, currents, as well as power harnessed from thermal, pressure and salinity gradients. The questions below include questions related to offshore energy and aquaculture, including general questions and two categories separated by technology.

In this RFI, aquaculture efforts refer to but are not limited to: coastal and offshore shellfish, finfish, and macroalgae farms of all sizes; ocean hatcheries; land-based facilities located near the shoreline such as hatcheries, recirculating farms, and processing facilities; environmental surveying and farm monitoring; and activities related to farm siting. This RFI also refers to aquaculturists, which include ocean farmers and others who work in the aquaculture industry.

Responses in this topic should focus on what research, data needs, and knowledge gaps are of highest priority for understanding the synergies between aquaculture and offshore and ocean renewable energy including offshore wind and marine energy. For the purposes of these categories, Offshore Energy is limited to offshore wind and marine energy and does not seek information on floating solar or offshore fossil fuel production or extraction.

Category 1: Offshore Energy and Aquaculture

Responses within this category can refer to both offshore wind and marine energy as relevant technologies.

1. For aquaculturists, how much energy is consumed during aquaculture operations? Please specify the type and size of aquaculture/aquaculture processes in your response.

2. For offshore energy developers, what factors and considerations play the largest role in developing technologies with a specific industry end-user (e.g., aquaculturist) in mind?

3. What research, data, or action is needed to ensure inclusivity in planning and implementing co-located aquaculture and energy projects, specifically to promote environmental justice and support underserved communities?

4. What types of resource characterization are necessary for the co-location of ocean energy systems to support aquaculture?

Category 2: Offshore Wind

Responses within this category should focus on offshore wind, both fixed bottom and floating.

1. What research is needed to understand how co-located aquaculture and offshore wind can be scalable, sustainable, economically viable, and provide benefits both to offshore wind, aquaculturalists, and other affected communities? What specific research areas or data are still needed to properly assess the feasibility of integrating aquaculture and offshore wind projects, either current or future?

2. Beyond co-location, how can innovative applications of aquaculture support offshore wind development? Examples of innovative applications include but are not limited to

fisheries enhancement, carbon sequestration, nature inclusive designs, carbon negative protein, etc.

3. For each stage of offshore wind energy development projects (pre-construction, operation, and decommissioning), what specific aspects of aquaculture production and operations should be taken into consideration if planning for co-location with offshore wind? How could aquaculture support offshore wind energy development at each stage?

4. What are the biggest challenges or concerns to offshore wind energy developers around the inclusion or integration of aquaculture into a project design? What is needed to overcome these challenges?

5. What partnerships would be necessary for a successful research or commercial offshore wind project to include aquaculture? How can these partnerships be structured to maximize the likelihood that aquaculturists, offshore wind energy developers, and other interested parties participate in studies? How can we structure such partnerships to create conditions to maximize trust and willingness to share data related to these studies?

6. What research, collaboration, or coordination is needed to understand environmental, social, and economic impacts for applications of aquaculture supporting offshore wind development?

Category 3: Marine Energy

Responses within this category should focus on marine energy technologies.

7. For aquaculturists, what factors and considerations typically play the largest role in making energy decisions for aquaculture operations? What specific factors would convince you to switch to alternate or renewable energy sources, like marine energy? How much energy is consumed during aquaculture operations? Please specify the type and size of aquaculture/aquaculture processes in your response.

8. What are the near-term opportunities to power smaller loads for aquaculture with marine energy? This could include environmental monitoring, data collection, or offsetting small power loads.

9. For each stage of aquaculture project development (e.g., siting, environmental assessment, permitting, installation, operation, monitoring), when should co-location of marine energy be considered? Does this change if the project is nearshore or offshore?

10. What partnerships would be necessary for a successful research or development marine energy project to include aquaculture? How can these partnerships be structured to maximize the likelihood that aquaculturists, marine energy developers, and other interested parties participate in studies?

11. What are the biggest challenges or concerns for the development of the co-location of marine energy with aquaculture? What support or information do aquaculturists need to overcome these challenges and/or make informed decisions? Please specify the type of aquaculture you are referring to in your response.

Request for Information Response Guidelines

Responses to this RFI must be submitted electronically to WindEnergyRFI@ee.doe.gov no later than 5:00pm (ET) on March 15, 2023. 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, and no more than 10 pages in length, 12-point font, 1-inch margins. Only electronic responses will be accepted.

Please identify your answers by responding to a specific question or topic if applicable. Respondents may answer as many or as few questions as they wish.

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.

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.