

Notice of Intent No. DE-FOA-0003318

Notice of Intent to Issue Funding Opportunity Announcement No. DE-FOA-0003183

The Office of Energy Efficiency and Renewable Energy (EERE) intends to issue, on behalf of the Wind Energy Technologies Office (WETO), a Funding Opportunity Announcement (FOA) entitled “Bipartisan Infrastructure Law (BIL), Provision 41007(b)(1), Aerodynamics for Offshore Wind Performance and Reliability”.

Background

On November 15, 2021, President Joseph R. Biden, Jr. signed the Infrastructure Investment and Jobs Act (Public Law 117-58), also known as the Bipartisan Infrastructure Law (BIL)¹. The BIL is a once-in-a-generation investment in infrastructure, designed to modernize and upgrade American infrastructure to enhance United States competitiveness, drive the creation of good-paying union jobs, tackle the climate crisis, and ensure stronger access to economic, environmental, and other benefits for disadvantaged communities². The BIL appropriates more than \$62 billion to the Department of Energy (DOE) to invest in American manufacturing and workers; expand access to energy efficiency and clean energy; deliver reliable, clean and affordable power to more Americans; and demonstrate and deploy the technologies of tomorrow through clean energy demonstrations.

To support the goal of building a clean and equitable energy economy, the BIL-funded projects are expected to (1) support meaningful community and labor engagement; (2) invest in America’s workforce; (3) advance diversity, equity, inclusion, and accessibility; and (4) contribute to the President’s goal that 40% of the overall benefits of certain federal investments flow to disadvantaged communities (the Justice40 Initiative³).

Technical Objectives

¹ Infrastructure Investment and Jobs Act, Public Law 117-58 (November 15, 2021). <https://www.congress.gov/bill/117th-congress/house-bill/3684>. This FOA uses the more common name “Bipartisan Infrastructure Law”.

² Consistent with E.O. 14008 and Justice40 interim implementation guidance, [M-21-28](#) and [M-23-09](#), DOE recognizes disadvantaged communities as identified by the White House Council on Environmental Quality’s [Climate and Economic Justice Screening Tool](#), and all Federally Recognized Tribes and Tribal entities (whether or not they have land).

³ The Justice40 initiative, created by E.O. 14008, establishes a goal that 40% of the overall benefits of certain federal investments flow to disadvantaged communities. See <https://www.whitehouse.gov/environmentaljustice/justice40/>.

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The intended FOA would seek applications to fill a critical void in the development of multi-megawatt wind turbines for offshore deployment. Modern offshore wind turbines are the largest rotating machines ever built by humankind. Existing aerodynamic design tools and analysis methods are not well validated for machines of this scale, placing the cost of development and performance expectations from these designs at significant risk. The FOA would support the necessary data and analysis to validate tools used in the design and development of large wind turbine rotors (>10MW) and facilitate the accelerated development and deployment of cost-effective, reliable offshore wind technology.

Specifically, WETO seeks to address the lack of open-source data on the behavior of wind turbine airfoils in operation at high Reynolds numbers, *i.e.*, at conditions in which air flow tends to be more turbulent and that are more representative of conditions as the scale of turbines increases. Data of interest include integrated aerodynamic performance of the baseline airfoil profile (lift, drag and moment), flow physics (flow visualization, boundary layer profiles, turbulent transition, acoustic emissions) and the impact of performance enhancing add-ons (e.g. vortex generators) as well as non-ideal profiles representative of manufacturing defects, damage, and erosion.

Wind turbine blades also experience high loads when idling or parked for installation, during maintenance, or with the passage of extreme weather events. At these times, the wind may come from any direction, and the loads generated on the wind blade and the resulting blade motion may be highly unsteady, varying in space and time. The simulation tools for wind blades can represent unsteady behavior reasonably well when the turbine is in operation, but often are less representative of behavior where the rotor is idling slowly or parked, leading to overly conservative designs or a risk of damage in certain wind conditions, depending on the assumptions made.

To support the design, development, and deployment of cost-effective, reliable offshore wind turbines, DOE intends to support the collection of benchmark airfoil datasets at high Reynolds numbers, as well as modeling and experimental efforts to characterize aerodynamic loads on non-operational wind turbines. This FOA would provide up to \$5.1 million in total funding. EERE envisions awarding 1 to 3 financial assistance awards in the form of cooperative agreements in the planned FOA. The estimated period of performance for all awards will be three (3) years. The overall goals of this FOA would be to:

- Collect and disseminate benchmark aerodynamic data to inform the design of next-generation wind turbine airfoils and blades;
- Develop and validate improved modeling and simulation tools for the behavior of idling or parked wind blades; and
- Provide the wind industry with physical insights and trustworthy models to minimize the

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risk of developing and deploying large offshore wind turbines.

Should a FOA be issued, teaming arrangements would be strongly encouraged in successful applications. Potential Applicants are encouraged to form partnerships with academia, DOE national laboratories, and wind turbine original equipment manufacturers and technology providers.

A Teaming Partner List will be made available on EERE Exchange at <https://eere-exchange.energy.gov> under NOI DE-FOA-0003318. The Teaming Partner List will be updated periodically until the close of the Full Application period of the potential FOA to reflect new Teaming Partners who have provided their information. By facilitating this Teaming Partner List, EERE does not endorse or otherwise evaluate the qualifications of the entities that self-identify themselves for placement on the Teaming Partner List. EERE will not pay for the provision of any information, nor will it compensate any respondents for the development of such information.

This Notice is issued so that interested parties are aware of the EERE's intention to issue this FOA in the near term. All 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 in late Spring 2024 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 apply to any open EERE FOAs that are currently in EERE eXCHANGE.

Beginning on July 29, 2022, eXCHANGE will be integrated with Login.gov. As of September 29, 2022, potential applicants will be required to have a Login.gov account to access EERE eXCHANGE. As part of the eXCHANGE registration process, new users will be directed to create an account in [Login.gov](https://login.gov). Please note that the email address associated with Login.gov must match the email address associated with the eXCHANGE account. For more information, refer to the Exchange Multi-Factor Authentication (MFA) Quick Guide in the [Manuals section](#) of eXCHANGE.

It is recommended that each organization or business unit, whether acting as a team or a single

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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.

- 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. Upon registration, SAM will automatically assign a Unique Entity ID (UEI).

NOTE: Due to the high demand of UEI requests and SAM registrations, entity legal business name and address validations are taking longer than expected to process. Entities should start the UEI and SAM registration process as soon as possible. If entities have technical difficulties with the UEI validation or SAM registration process they should utilize the HELP feature on SAM.gov. SAM.gov will work entity service tickets in the order in which they are received and asks that entities not create multiple service tickets for the same request or technical issue. Additional entity validation resources can be found here: GSAFSD Tier 0 Knowledge Base - Validating your Entity.

- 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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