U.S. Department of Energy (DOE)
Office of Energy Efficiency and Renewable Energy (EERE)

Offshore Wind National and Regional Research and Development

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FOA Issue Date:	7/25/2024
Submission Deadline for Concept Papers:	9/3/2024 at 5:00 p.m. ET
Submission Deadline for Full Applications:	11/7/2024 at 5:00 p.m. ET
Expected Date for EERE Selection Notifications:	March/April 2025
Expected Timeframe for Award Negotiations:	August 2025

- Applicants must submit a Concept Paper by 5:00 p.m. ET on the due date listed above to be eligible to submit a Full Application.

- To apply to this FOA, applicants must register with and submit application materials through EERE eXCHANGE at https://eere-eXCHANGE.energy.gov, EERE's online application portal.

- Applicants must designate primary and backup points-of-contact in EERE eXCHANGE with whom EERE will communicate to conduct award negotiations. If an application is selected for award negotiations, it is not a commitment to issue an award. It is imperative that the applicant/selectee be responsive during award negotiations and meet negotiation deadlines. Failure to do so may result in cancelation of further award negotiations and rescission of the selection.

- **Unique Entity Identifier (UEI) and System for Award Management (SAM) -** Each applicant (unless the applicant is excepted from those requirements under 2 CFR 25.110) is required to: (1) register in the SAM at **https://www.sam.gov** before submitting an application; (2) provide a valid UEI number in the application; and (3) maintain an active SAM registration with current information when the applicant has an active federal award or an application or plan under consideration by a federal awarding agency. DOE may not make a federal award to an applicant until the applicant has

complied with all applicable UEI and SAM requirements and, if an applicant has not fully complied with the requirements by the time DOE is ready to make a federal award, DOE will determine that the applicant is not qualified to receive a federal award and use that determination as a basis for making a federal award to another applicant.

NOTE: Due to the high number 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 use the HELP feature on SAM.gov. SAM.gov will address 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.

Modifications

All modifications to the FOA are HIGHLIGHTED in the body of the FOA.

Mod. No.	Date	Description of Modification
0001	8/8/2024	• Removing the following language ", see Wind Energy Technologies Office Projects Map | Department of Energy. Specific examples include: the Thermal Tracker System and the offshore biological radar project." from section I.B. for Topic Area 3 under Applications not of Interest, page 21. • Revised $3.3M to $2.15M on page 38

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I. Funding Opportunity Description

A. Background and Context

i. Background and Purpose

This Funding Opportunity Announcement (FOA) is being issued by the U.S. Department of Energy's Office of Energy Efficiency and Renewable Energy (EERE) on behalf of the Wind Energy Technologies Office (WETO). The goals of this FOA are to address several major research priorities for offshore wind:

- Floating Offshore Wind Platform Research and Development;
- Innovation for Fixed-Bottom Offshore Wind Foundation Types and Supporting Infrastructure;
- Technology Development to Monitor Birds and Bats Offshore;
- Connect Domestic Manufacturing and Supply Chain Assets to the U.S. and Global Offshore Wind Development Pipeline;
- Create a University-Led Center of Excellence for Floating Offshore Wind; and
- Address the Need to Protect Future Offshore Wind Farms against Lightning.

These goals align with the U.S. Department of Energy's (DOE's) priorities in advancing clean energy applications and energy savings the U.S. Department of the Interior (DOI)'s priorities of accelerating responsible development of renewable energy; and the national goals to deploy 30 gigawatts (GW) of offshore wind by 2030 and 15 GW of floating offshore wind by 2035 while advancing environmental justice, protecting biodiversity, supporting the creation of good-paying jobs, and promoting ocean co-use.

Building a clean and equitable energy economy and addressing the climate crisis is a top priority of the Biden Administration. This FOA will advance the Biden Administration's goals to achieve carbon pollution-free electricity by 2035 and to "deliver an equitable, clean energy future, and put the United States on a path to achieve net-zero emissions, economy-wide, by no later than 2050"[1] to the benefit of all Americans. The Department of Energy is committed to pushing the frontiers of science and engineering, catalyzing clean energy jobs through research, development, demonstration, and deployment (RDD&D), and ensuring environmental justice and inclusion of underserved communities. The Department Of Interior plays a central role in how the United States stewards its public lands, increases environmental protections, pursues environmental

[1] Executive Order 14008, "Tackling the Climate Crisis at Home and Abroad," January 27, 2021.

justice, honors our nation-to-nation relationship with Tribes, and is taking action to ensure all communities —including communities of color and urban, rural, and indigenous communities —benefit from an aggressive and whole-of-government response of protecting public lands, the environment, and Americans' lives and futures. To meet the scope of these challenges, DOI is investing in climate research and environmental innovation to incentivize the rapid development of clean energy solutions, while reviewing existing programs to restore balance on America's public lands and waters to benefit current and future generations.

The applied and basic research, education/outreach, and feasibility study activities to be funded under this FOA will support the government-wide approach to the climate crisis by driving the innovation that can lead to the deployment of clean energy technologies, which are critical for climate protection. Specifically, this FOA will facilitate innovation that:

- Drives accelerated U.S. floating offshore wind deployment.
- Aids the transition to fixed-bottom platform concepts that simplify port and vessel constraints.
- Advances technologies to monitor bird and bat presence and behavior to understand risk to species from offshore wind deployment.
- Leverages the strengths of the existing industrial base in the Great Lakes region to engage with the national and global offshore wind market.
- Seeds a university education and research ecosystem to support the technical needs of the U.S. floating offshore wind industry and other stakeholders and develop the next generation of technical leadership for the industry in the United States.
- Advances the understanding of lightning occurrence and mitigation at offshore wind farms to improve protection from lightning strikes.

ii. Technology Space and Strategic Goals

Offshore wind is a growing source of reliable and clean energy around the world. A single offshore wind power plant can deliver a significant amount of energy to coastal load areas, which tend to suffer from transmission congestion and limited siting options for large-scale, land-based renewable energy generation. The potential scale of offshore wind energy's deployment and its access to the nation's highest and most reliable wind speeds makes this generation source a crucial infrastructure investment, and one that can help revitalize coastal communities, including ports and manufacturing facilities.

The Bureau of Safety and Environmental Enforcement (BSEE) mission is to promote safety, protect the environment, and conserve resources offshore

through vigorous regulatory oversight and enforcement. BSEE leads the development of workplace safety and environmental compliance strategies for offshore renewable energy projects on the U.S. Outer Continental Shelf (OCS) and actively researches and evaluates current and emerging technologies in an ongoing effort to reduce risks across all offshore operations.

This FOA seeks applications that address DOE's programmatic goals for offshore wind. DOE's 2022 Offshore Wind Energy Strategies report defined regional and national strategies to accelerate and maximize the effectiveness, reliability, and sustainability of U.S. offshore wind energy deployment and operation. DOE's 2023 Advancing Offshore Wind Energy in the United States, presents a comprehensive summary of DOE's role in the nationwide effort to deploy 30 GW of offshore wind energy by 2030 and set the nation on a pathway to 110 GW or more by 2050. Detailed technical descriptions of the specific Topic Areas are provided in the sections that follow.

To address the goals of advancing offshore wind energy in the United States, the activities funded under this FOA will address ways to reduce costs for floating and fixed-bottom offshore wind systems, as well as improving operational capabilities through increased understanding of lightning risk. This FOA will fund the development of tools and technologies that project developers and regulators can use to optimize offshore wind development in the Atlantic, Pacific, Great Lakes, and Gulf of Mexico. To address supply chain development, this FOA will fund research that leverages the vast manufacturing capacity in the Great Lakes region to bolster domestic and international offshore wind developments. Finally, this FOA will fund a university-led Floating Offshore Wind Center of Excellence to catalyze an education, research, and partnership ecosystem to address technology, deployment, and workforce needs of the floating U.S. offshore wind industry to develop the next generation of leadership.

iii. Teaming Partner List (Optional)

DOE is compiling a Teaming Partner List to facilitate the formation of project teams for this FOA. The Teaming Partner List allows organizations that may wish to participate on a project to express their interest to other applicants and explore potential partnerships.

The Teaming Partner List will be available on EERE eXCHANGE and will be regularly updated to reflect new teaming partners who provide their organization's information.

SUBMISSION INSTRUCTIONS: View the Teaming Partner List by visiting the EERE eXCHANGE homepage and clicking on "Teaming Partners" within the left-hand navigation pane. This page allows users to view published Teaming Partner Lists.

To join the Teaming Partner List, submit a request within eXCHANGE. Select the appropriate Teaming Partner List from the drop-down menu and fill in the following information: Investigator Name, Organization Name, Organization Type, Topic Area, Background and Capabilities, Website, Contact Address, Contact Email, and Contact Phone.

DISCLAIMER: By submitting a request to be included on the Teaming Partner List, the requesting organization consents to the publication of the above-referenced information. By facilitating the Teaming Partner List, DOE is not endorsing, sponsoring, or otherwise evaluating the qualifications of the individuals and organizations that are identifying themselves for placement on this Teaming Partner List. DOE will not pay for the provision of any information, nor will it compensate any applicants or requesting organizations for the development of such information.

B. Topic Areas

This FOA consists of six Topic Areas. Topic Area 1 includes two subtopics. Descriptions for all Topic Areas and Subtopics are provided below.

All work under EERE funding agreements must be performed in the United States. See Section IV.I.iii. and Appendix B.

Topic Area	Title	Description
Topic Area 1, Subtopic 1a	Refinement and Innovation in Floating Platform Design, Manufacturing, and Deployment	Conduct research and development to improve manufacturing and deployment of floating offshore wind systems.
Topic Area 1, Subtopic 1b	Next-Generation Integrated Floating Turbine/Platform Technologies	Assess integrated design opportunities and key operating dynamics between turbine, tower, platform, and mooring system.
Topic Area 2	Innovation for Fixed-Bottom Offshore Wind Foundation Types and Supporting Infrastructure	Increase the industry adoption of novel designs and methodologies for fixed-bottom systems to enable increased manufacturing throughput and broader deployment of offshore wind, including ways to address current areas of concern/limitation.
Topic Area 3	Technology Advancement to Inform Risk to Birds and Bats from Offshore Wind Energy	Advance technologies to monitor bird and bat presence and behavior to understand risk to species from offshore wind deployment.
Topic Area 4	Development of a Manufacturing and Supply Chain Offshore Wind Consortium Based in the Great Lakes Region	Leverage the strengths of the existing industrial base in the Great Lakes region to engage with the national and global offshore wind market. Address the immediate needs of the domestic offshore wind pipeline through

		manufacturing, technology innovation, and workforce development.
Topic Area 5	Floating Offshore Wind Center of Excellence	Seed a university-based education and research ecosystem to support the technical needs of the U.S. floating offshore wind industry and other stakeholders and develop the next generation of leadership for the industry in the United States.
Topic Area 6	Protecting Future Offshore Wind Farms Against Lightning	Develop a robust understanding of the interaction between wind turbines and lightning within offshore wind farms.

Topic Area 1: Floating Offshore Wind Platform Research and Development

The intent of this Topic Area is to facilitate innovation that will advance manufacturing, deployment, and operation of floating offshore wind systems in the United States. Please read all sections of this topic area closely for further information including Applications Not of Interest.

Floating offshore wind will be crucial to achieving national long-term offshore wind deployment goals, as approximately two-thirds of the nation's offshore wind resource potential is in deep water areas where floating substructures ("platforms") will be required. Therefore, the U.S. floating offshore wind market is expected to be of significant scale. With focused investment, the country could become a global leader in this segment of the industry. Although deployment of floating offshore wind platforms will lag that of fixed-bottom structures in the near-term because the technology is currently less mature, floating offshore wind energy capacity could eventually surpass that of fixed-bottom offshore wind energy in the United States.

This FOA topic seeks to support the nascent U.S. floating offshore wind industry in refining platform designs to facilitate cost-effective manufacturing processes, identifying infrastructure to facilitate assembly and deployment, and developing a domestic supply chain to accelerate the commercial readiness of U.S. products.

Floating offshore wind system designs are likely to evolve in the coming decades as deployment volume increases, operational knowledge is gained, and more data on environmental conditions of wind energy areas become available. It is anticipated that in response to this experience turbines, towers, platforms, mooring configurations, and overall system controls will become increasingly integrated. Therefore, the topic also has a focus on research studies that will inform this eventual transition of the technology to more integrated components and subsystems.

Overall, projects awarded under the subtopics may focus on near-term needs for the first generation of systems to be installed, and/or on longer term needs to lower costs and increase efficiency in floating system validation, fabrication, installation, and operation. This Topic Area includes the following two subtopics:

Subtopic 1a: Refinement and Innovation in Floating Platform Design, Manufacturing, and Deployment

The subtopic will support research and development to improve manufacturing and deployment of floating offshore wind systems. The research undertaken should tackle a specific challenge to commercialization, with the outcomes being shown to ease the transition from design to commercial development. The focus of the research may be on materials, fabrication techniques, specialized facilities and tooling, elements of port infrastructure, or novel deployment methods, particularly those applicable to a range of floating offshore platform designs.

Process verification or testing of innovations may be included. Manufacturing optimization may include verification through modeled simulations and/or scaled tests. Testing of floating offshore wind platform components or full systems may be included at scale or at full-size.

The focus of manufacturing, deployment, and testing analyses should be on floating platform configurations for which at least engineering drawings and computational analysis of structure and performance have been undertaken before application, rather than on proposals for entirely new or novel platform designs. This corresponds to Technical Readiness Level (TRL) 5 or above (see Appendix D).

Subtopic 1b: Next-Generation Integrated Floating Turbine/Platform Research

Currently offshore wind turbines and the floating substructures to support them offshore are designed independently and coupled during installation for deployment in deep water wind farm arrays. The research undertaken should address foundational challenges to integrated floating turbine/platform development, with the outcomes being shown to facilitate the long-term development of concepts. Significant cost and performance benefits may eventually be gained through a more integrated approach to the design, fabrication, and operation of fully integrated systems.

The objective of this subtopic is to aid the long-term transition to innovative integrated turbine/platform concepts and subsystems that

simplify overall configurations to reduce cost, increase operating efficiency and expand energy production capacity.

This topic area complements the results of the ARPA-e ATLANTIS program which has supported investigations of unique turbine designs, next-generation software applications, and developing new turbine testing tools. This topic area focuses less on unique integrated turbine/platform concepts and instead on foundational elements that can be employed in future concept developments. The topic area seeks to support research and development studies that assess integrated design opportunities and key operating dynamics between turbine, tower, platform, and mooring system. Research topics may include integrated design modeling tools and methods, investigation of integrated subsystems, coupled dynamic and fatigue analysis, optimized controls, scaled testing, and use of lightweight materials. If the focus is on technology development or assessment, that technology should have attained a TRL 3 or above (see Appendix D).

Potential Scope Elements

Proposed work must fall within the scope of one of the subtopics summarized above. Examples of compliant projects are provided below by subtopic.

Subtopic 1a:

- Modifications to platform designs that can be demonstrated to reduce fabrication and deployment costs, timelines, material supply constraints, and/or infrastructure requirements. May include use of lighter materials, advanced modeling tools for design refinement, and innovative methods for assembly and deployment.
- Refinement of specific platform manufacturing processes to lower overall costs and/or expand supply chain opportunities either in terms of vendor capabilities or geographic location. Examples include modularity and standardization of components, fabrication facilities or processes, and development of automated procedures, new welding techniques, and advanced concrete processes.
- Verification of manufacturing approaches through scaled or partial manufacturing demonstration; this could include modeling/simulation of the proposed manufacturing process(es), or of the full supply chain process.
- Testing to validate floating offshore wind platforms and components. This may include scaled tests of platform systems, or full-sized testing of components or subsystems.
- Innovation of assembly and installation techniques particularly those that could be suitable for multiple types of platform designs. May include designs for special-purpose fabrication facilities.

- Approaches to addressing regional challenges such as ice-tolerant design adaptations for the Great Lakes, and logistics or infrastructure constraints relevant to specific regions.

Subtopic 1b:

- Modeling tools and methods to evaluate the performance and practicality of integrated floating system designs.
- Assessments of the potential benefits and tradeoffs of transitioning to specific integrated configuration concepts.
- Coupled dynamic and fatigue analysis to inform design engineering decisions.
- Control system adaptations to optimize energy production and reduce structural loads.
- Scaled testing of key components or concepts that may enable the transition to integrated systems.
- New applications for lightweight materials that may positively impact overall system performance.

Application Requirements

The application must provide, at minimum, the following details regarding the proposed innovation and/or research effort:

- Statement of the benefits of the proposed research or technology to the floating offshore wind industry in the United States.
- Proposed technology design and function details, if applicable.
- Research plan.
- Type of testing to be undertaken, if applicable to the research plan, including a description of the planned test(s) and demonstrated support and availability of the required test facilities.
- Economic analysis of the commercial feasibility of a proposed technology.
- Assessment of how proposed research that does not include technology development can be applied to provide benefit to the floating offshore industry.
- (Subtopic 1a only) Commercialization plan, including details such as planned partnerships and means of meeting financial support requirements.
- (Subtopic 1a only) Risk assessment for eventually achieving successful demonstration of the technology followed by commercial orders.

Deliverables

Selected projects will be required to provide:

- Quarterly reports and presentations to WETO outlining progress made on all awarded tasks.
- Annual technical reports.

- Peer reviewed, publicly available final report that includes a detailed technical summary of all tasks, results of research and testing, and plans to enable future deployment (covering all items detailed in the Application Requirements).
- Participation in WETO Program Peer Review activities occurring during the project timeline or within 1-2 years.
- (Preferred but not required) Submission of at least one manuscript, open access preferred, on technology development and results for publication in a peer-reviewed journal that is publicly available.
- Applicable data available to the public, government agencies and other researchers, preferably through established platforms. Examples of information that DOE expects to be available to the public include but are not limited to test results, improvements in manufacturing timelines and cost savings, and data to support lessons learned to improve broader manufacturing and operational procedures.
- Applications should include the necessary scope to produce the required deliverables.

Team Requirements

- The team composition must be appropriate to fulfill the work proposed. As a minimum, details of the following must be included:
  - Support from, or partnerships with, companies or other entities active in the floating offshore wind industry and/or relevant supply chain and supporting infrastructure providers.
  - Support from members of a proposed advisory committee that includes relevant stakeholders for commercializing and deploying the technology.

Applications Not of Interest

Topic Area 1a:

- Proposals for entirely new or novel floating platform designs.
- Research on or designs for vessels.
- Studies or designs for full port infrastructure development.

Topic Area 1b:

- Research that will not contribute to the publicly available body of knowledge related to the potential adoption of integrated floating offshore wind system configurations.

Topic Area 2: Innovation for Fixed-Bottom Offshore Wind Foundation Types and Supporting Infrastructure

The majority of the existing Bureau of Ocean Energy Management (BOEM) wind lease sites in the Atlantic Ocean will be developed in water levels of roughly 60

meters (m) or less using fixed-bottom foundations. Historically, monopiles have been the technology of choice for commercial development in less than 60 m of water. As the U.S. offshore wind market is expected to grow substantially in the coming decades, additional technology solutions will be needed to avoid infrastructure constraints. Some of the limitations facing the next generation of fixed-bottom projects are factory and fabrication constraints, specialized vessel requirements and availability, and port readiness and configurations. Please read all sections of this topic area closely for further information including Applications Not of Interest.

The objective of this Topic Area is to increase industry adoption of novel designs and methodologies for alternative foundation designs that would alleviate major infrastructure constraints. The intent is to address supply chain and deployment limitations by advancing designs that reduce the reliance on increasingly encumbered infrastructure (e.g., factories, ports, vessels). Ideal projects would employ technology solutions applicable to a broad range of turbine sizes, and standardize the tools and procedures required so they are not limited by foreseeable turbine capacity. This Topic Area also aims to enable increased manufacturing rates and throughput for non-monopile foundations that can lead to broader deployment of fixed-bottom offshore wind, particularly in areas that have challenges associated with monopile foundations. Projects in this topic area are anticipated to advance technologies from a minimum TRL 5 or above to approximately TRL 7 (see Appendix D for definitions).

Increased deployment can be achieved through a variety of methods, including using non-monopile designs that can be installed without specialized vessels, using vessels with handling equipment that can adjust to different sizes of turbines, or using different installation techniques that do not require large piling equipment. Technologies that are part of the offshore foundation design, the onshore infrastructure, or the vessels for deployment can be included.

Potential Scope Elements

The scope should advance a technology that may cover one or more of the following, suitable to deploy fixed-bottom offshore wind turbines:

- Any offshore wind related technological innovation that alleviates requirements for Wind Turbine Installation Vessels and other specialized vessels.
- Innovations that enable factories, ports, or vessels to handle foundations for a broad range of turbine sizes. This can include, but is not limited to, handling equipment, cranes, or vessel modifications specific to turbine foundation handling.
- Alternative foundation designs and installation methods that:
    - Can accommodate a variety of sediment types, infrastructure constraints, meet throughput for gigawatt scale demands, or have sea ice tolerance.

- Incorporate nature-based or nature-enhancing design.
- Develop standardized 'off-the-shelf' non-monopile foundations to enable accelerated industrialization.
- Maximize deployment options for different materials (e.g., concrete, steel) suited to regionally specific application (e.g., regional emission limits, ability to procure, local manufacturing) that can be deployed at scale to meet the demand for offshore wind structures.

Application Requirements

The application must detail the approach to complete the following, as a minimum, as part of the proposed work:

- Statement of the benefit of the proposed technology to reduce the dependency of infrastructure on the turbine size, increase throughput of foundation design, and/or avoid specific areas of concern related to monopile foundations.
- Design details.
- Research plan to advance the technology.
- Specify type of testing to be undertaken to prove the technology.
- Test plan and demonstrated support from facilities to undertake the tests.
- Economic analysis of the feasibility of the technology.
- Commercialization plan, including details of the required partners through the process.
- Risk assessment including for widespread deployment of the technology.

Deliverables

Recipient projects will be required to provide:

- Quarterly reports and presentations to WETO outlining progress made on all awarded tasks.
- Annual technical reports.
- Peer reviewed, publicly available final report that includes a detailed technical summary of all tasks, results of research and testing, and plans to enable future deployment (covering all items detailed in the Application Requirements).
- Participation in WETO Program Peer Review activities occurring during the project timeline or within 1-2 years.
- (Preferred but not required) Submission of at least one manuscript, open access preferred, on technology development and results for publication in a peer-reviewed journal that is publicly available.
- Applicable data available to the public, government agencies and other researchers, preferably through established platforms. Such data may

include, but not be limited to, text results, data supporting foundation applicability in a broad range of conditions, and model simulation results for improved deployment methods.
- Applications should include the necessary scope to produce the required deliverables.

Team Requirements

The team composition should be appropriate to fulfill the work proposed. As a minimum, details of the following should be included:

- Demonstration of partnership with relevant sectors of the offshore wind supply chain to use the technology once developed. This could include manufacturing, port, or vessel operators, and/or an offshore wind developer.
- Support from members of a proposed advisory committee that includes relevant stakeholders to commercialize and deploy the technology.

Applications Not of Interest

- Technologies that support floating offshore wind only. See Topic Area 1 for relevance.
- Technologies that rely on non-traditional turbines.
- Technologies that are limited to particular site-specific conditions and cannot be deployed in multiple U.S. areas.

Topic Area 3: Technology Advancement to Inform Risk to Birds and Bats from Offshore Wind Energy

Offshore wind energy facilities have the potential to affect wildlife that use or pass through the same offshore area, including bird and bat species. It is important to understand the potential risk to these species and their populations. Scientists rely on collision risk models to predict this risk and then develop mitigation tools to reduce impacts to birds and bats. These models use animal density, behavior, and other wildlife and environmental metrics as inputs to estimate collision risk to flying species from offshore wind turbines. Currently, there are uncertainties in the species-specific inputs for collision risk models used for evaluating bird and bat risk for offshore wind developments. Increased understanding of bird and bat exposure (e.g., seasonal presence, flight height), species traits (e.g., flight characteristics), and avoidance behaviors will inform environmental monitoring and permitting, as well as help to address stakeholder concerns. This information is also important to target appropriate wildlife impact mitigation strategies to avoid, minimize, and mitigate impacts. The objective of Topic Area 3 is to advance technologies that monitor bird and bat presence and behavior around offshore wind turbines and facilities to provide data that will better inform and mitigate bird and bat risk from offshore wind energy. Please

read all sections of this topic area closely for further information including Applications Not of Interest.

The aim is to advance projects that seek to improve monitoring of birds and bats offshore through further developing a single technology or using a combination of technologies as one system. Systems should monitor bird and bat presence and movements at multiple scales around an offshore wind farm.

Further, there is a recognized need for effective systems that combine multiple types of technology. The focus for this solicitation is on those systems that measure from micro- to meso-scale.[2] The development of monitoring technologies and systems should improve the application of collision risk models in all potential offshore wind development regions, including the Atlantic, Pacific, Gulf of Mexico, and Great Lakes.

Applicants seeking to develop a single technology should aim to significantly advance the TRL of that technology over the course of the project while applicants seeking to develop a combined system should include mainly higher-TRL components and focus on integration and increased robustness of those component technologies. All technologies or systems should reach a TRL 6 or higher by the end of the project period (see Appendix D). Applicants must include a plan for testing the technology including in-water testing and if feasible at an offshore wind farm (surrogate opportunities will be considered). Testing should include technology validation using appropriate methods.

Potential Scope Elements

The proposed work should address the objective above by advancing technologies that monitor bird and bat presence and behavior in three dimensions and in various seasons, weather, and light conditions to the extent practicable. The outputs should directly inform collision risk model parameters. The technologies of focus can include, but are not limited to, advancement of any of the following individual technologies, or advancing the use of these in a combined technologies system:

- Telemetry technologies/components (e.g., tags, receivers)
- Radar
- Lidar
- Camera (e.g., visual and/or thermal)
- Passive acoustic monitoring technology for bird and bat vocalizations
- Other appropriate technologies not included above.

If developing a combined system, proposed systems should include the following to the greatest extent practicable:

[2] In this context, microscale relates to observations around a single turbine, and mesoscale is within the wind farm.

- Advancements in the ability to combine and process multiple data streams.
- The ability to gather, access, and/or input local weather and environmental data (e.g., wind speeds, temperature).

Any proposed work (single technology or combined system) should include the following, to the greatest extent practicable:

- Evidence of the technology's ability to collect data that is relevant to collision risk model input (e.g., three-dimensional movements, flight height, taxa identification across animal size range, avoidance and attraction behaviors, range).
- Rigorous technology testing including any required initial laboratory/field testing and offshore environment testing. Offshore testing would preferably take place at an offshore wind farm, but surrogate opportunities will be considered. Testing should include technology validation using appropriate methods.
- Advancements in performance of relevant technology parameters (e.g., detection range, resolution, system uptime, accuracy (reduced false positives/negatives)).
- Advancements in processing data using automation (e.g., machine learning) for use in detection, tracking, minimizing clutter/interference, and/or taxa identification.
- Advancements in technology robustness and/or weatherization for use in the offshore environment.
- Addresses other technology-adjacent issues (e.g., power supply/access, mounting, stabilization, data transfer/storage, or other logistical considerations as appropriate).
- Includes a flexible framework for potential additional data streams that may collect complementary wildlife observations (e.g., utilizing data standards, considerations for interoperability).
- Considerations for industry adoption/commercial use of the technology including end-of-project cost targets for the technology, partnerships, and regulatory needs.

The focus of the work should be to advance technology to detect, identify, and track movement of birds and bats around offshore wind facilities that will gather data to improve collision risk models.

Application Requirements

Proposals for this technology development must include the following:

- A detailed description of the technology's current capabilities, any testing done to date, proposed advancements, and end-of-project technical performance targets, including any advancements relevant to potential scope elements above, as appropriate.

- A description of how the technology will be applicable for offshore wind turbines and facilities at both current and foreseeable megawatt capacity.
- A description of how the proposed work would have the capacity, once completed, to provide data that informs avian and bat risk including advances to collision risk models in the offshore environment.
- A plan for testing of the technology including any required initial laboratory testing, land-based testing, and offshore environment testing, preferably at an offshore wind farm, but surrogate opportunities will be considered. Testing must include technology validation using appropriate methods.
- A plan for processing, storing, and sharing data, including any associated costs.
- A plan for creation of a Technical Advisory Committee (TAC) including potential membership (see further detail below) and demonstration that proposed tasks actively incorporate the input of, and buy-in from, specific federal and/or state regulatory and resource management agencies, offshore wind project developers, and/or any other stakeholders whose participation will be critical to the effective execution of those tasks.
- Plan for industry adoption/commercial use of the technology including considerations such as end-of-project cost targets for the technology, partnerships, and regulatory needs.

Deliverables

Recipient projects will be required to produce the following deliverables:

- Results from testing of the technology including any required initial laboratory testing, land-based testing, and offshore environment testing. Results should include technology validation using appropriate methods.
- Quarterly reports and presentations to WETO outlining progress made on all awarded tasks.
- Annual technical reports.
- TAC-reviewed initial study plan.
- TAC-reviewed and publicly available final report that includes a detailed technical summary of all tasks, results of research and testing, future applicability to informing collision risk models and bird and bat impact assessments and reported steps for industry adoption/commercial use of the technology.
- Participation in WETO Program Peer Review activities occurring during the project timeline or within 1-2 years.
- A plan for eventual industry adoption/commercial use of the technology including considerations such as end-of-project cost targets for the technology, partnerships, and regulatory needs.

- Submission of at least one manuscript, open access preferred, on technology development and results for publication in a peer-reviewed journal that is publicly available.
- Teams will make applicable data available to the public, government agencies and other researchers, preferably through established platforms as appropriate. Example data includes bird and bat observations, identification, and presence. Data should meet appropriate data and metadata standards to ensure quality and compatibility with existing efforts and added to relevant repositories such as Marine Cadastre, North American Bat Monitoring Program (NABat) and others. Teams should work with their TAC or other relevant groups (e.g., Tethys, Regional Wildlife Science Collaborative (RWSC)) to ensure that any applicable project data/outputs are added to relevant public repositories.
- Applications should include the necessary scope to produce the required deliverables.

Team Requirements

The team composition must be appropriate to fulfill the work proposed. As a minimum, details of the following must be included:

- The project team must include varied expertise such as engineering, biology, and statistics. Each participant must demonstrate the added value they bring to the research agenda or coordination needs of the project.
- Demonstration of a plan to seek partnership arrangements with an offshore wind developer or other industry expert, in order to collaborate on project needs which may include, but are not limited to: 1) Collaboration on integration of the proposed technology (e.g., mounting, data transfer, and power needs) if applicable to the technology, and 2) Conducting field testing for the technology or system at an offshore wind farm or other suitable site if applicable to the technology. This can be provided through commitment of a team member, a letter of interest/support, or other means that demonstrates a test is feasible. Any necessary partnership arrangements must be completed by the end of the first budget period.
- Creation of a TAC that includes relevant members such as regulatory agencies, industry, and collision risk model experts to ensure the technology advancement is appropriate to informing collision risk models, is practical to deploy, and will fulfil regulatory requirements.
- Teams are encouraged to coordinate with relevant regional environmental and/or technological organizations such as Regional Wildlife Science Collaborative for Offshore Wind (RWSC), Association of Fish and Wildlife Agencies, Marine Technology Society, etc., to promote information-sharing.

Budget Periods

There will be two budget periods with a Go/No-Go decision between each budget period to determine continuation of the project. The first budget period will focus on activities that will not require federal permitting be completed (e.g., desk-top activities: such as study plan finalization, permitting, procuring sites and equipment), laboratory studies, and/or shore-side testing as needed. The first budget period will have clear milestones and deliverables, proposed by the applicant. Continuation to the next budget period will be dependent on successful completion of budget period tasks. Once any necessary federal permitting is completed, the second budget period will consist of field-testing of a high-TRL technology or system at an appropriate site with preference for an offshore wind farm or other suitable offshore site.

Applications Not of Interest

The advancement of the following technologies is not of interest for this topic:

- Individual technologies that only detect collisions via blade-mounted methods.
- Technologies or combined systems that are duplicative of currently funded DOE WETO work and/or tasks.

Topic Area 4: Development of a Manufacturing and Supply Chain Offshore Wind Cluster Based in the Great Lakes Region

The U.S. offshore wind industry has varying degrees of establishment in different regions of the country. To advance the pipeline of 52 GW of offshore wind and counting, the supply chain must grow. As the supply chain grows, there is an opportunity to ensure that a) the economic impacts are US-based to the greatest extent possible, and b) the economic reach of the supply chain extends beyond coastal regions. One way to do that is through local content and place-based manufacturing. The Great Lakes Region has deep and historical roots in manufacturing and this proposed cluster is intended to provide the opportunity for those manufacturers that are either not engaged in the offshore wind space, or are engaged, but could further deepen their engagement. The cluster also offers the opportunity to support tiers 2, 3, and 4 manufacturers, by using the synergistic traits of the cluster to solidify the Great Lakes Region in the offshore wind manufacturing supply chain. Please read all sections of this topic area closely for further information including Applications Not of Interest.

A cluster organization facilitates the cooperation between the actors in the ecosystem and handles administration and strategy work, as well as the activities and services which the cluster participants are seeking. Interaction enables learning processes. Learning of a diversity of perspectives increases the probability to see the problems from different angles, identify existing strengths,

discover more fitting approaches and solutions, and increase the likelihood of success through joining forces. More interaction creates more learning, which again creates more innovation, which gives rise to shared growth.

Proposed focus and scope:

The focus of this Topic Area is to seed one or two collaborative entities to extend the reach of the blue economy (as defined by the World Bank) in the Great Lakes region. WETO is seeking a collaborative (or collaboratives) that will gather and align industry, government, communities, academia, and other interested parties to examine existing manufacturing capabilities and create economic growth in the Great Lakes region in the domestic offshore wind energy supply chain. WETO will consider existing collaborations and proposed collaborations with the intention that the collaboration continues following the period of performance funded by WETO. This Topic Area will have two potential levels of funding: the lower end for entities that align with a single state or smaller geographic footprint; and the higher end for entities that have a regional focus and cross state boundaries.

Potential Scope Elements

- WETO is soliciting an organizing entity (to serve as a lead) to establish and lead a cluster of members in the Great Lakes region that will have a focus on growing the offshore wind manufacturing supply chain in this region. WETO is seeking an organization(s) to function as the organizing entity of such an organization that can:
    - Provide strong leadership and establish a robust business model to leverage all tiers of the manufacturing supply chain in the Great Lakes region;
    - Establish a clear structure and methodology for initiating and executing a manufacturing cluster, as defined by the cluster members and EERE; the cluster is meant to include manufacturers and other suppliers to the offshore wind supply chain
    - Serve as a primary point of contact for the cluster. This will include the definition, management, and implementation of clear membership operating structures and strategies for participation by a wide range of stakeholders in the cluster; leveraging of federal funds and providing the necessary agreements to enable collaboration with all stakeholders along the offshore wind supply chain, including end-users, to allow them to benefit from cluster efforts.
    - Leverage relationships with businesses, government, tribes, and communities in the region and connect them with national and global offshore wind companies to maximize regional potential and grow the businesses to support the offshore wind pipeline.

- Attract key industry players as participating cluster members.
- Organize the regional needs, strengths, and priorities associated with accelerating and supporting offshore wind development and deployment pertinent to the relevant region, and how these regional characteristics can support the offshore wind industry in the United States.
- Leverage geographically concentrated networking hubs of small businesses, suppliers, service providers, and related institutions that work together to maximize resources, compete on a larger scale, and drive innovation and job creation.
- Facilitate use of shared tools and activities that allow for the knowledge, experience, and resources of multiple entities to be leveraged in arriving at a common objective—in this case, growing the offshore wind manufacturing capability in the United States.
- Connect differing levels of local manufacturers to systematically grow the offshore wind manufacturing base in the United States. It is expected that the cluster will attract local and regional expertise and knowledge from other U.S. industries into the offshore wind industry.

Application Requirements

- A statement of the benefits of the proposed cluster to the offshore wind industry in the Great Lakes region.
- Demonstration of how the applicant will successfully engage with and achieve active participation from the manufacturing community in the Great Lakes region.
- Assessment supporting the expected effectiveness of the proposed approach, accompanied by sufficient detail, including discussion of prior experience that supports the viability of the proposed plan and overall approach.
- Identification of potential cluster membership through letters of interest and an explanation of how new members would join.
- A holistic and integrated view of how applicants will seek and incorporate diverse perspectives throughout the design of the Cluster, both in structural organization and in execution of mission, including:
  - Discussion of engagement with different types of institutions and organizations (e.g., research-intensive, undergraduate focused, minority-serving, community-based) and enfranchisement of diverse viewpoints within the organizational structure and decision-making processes.
  - Outreach and planned engagement activities to enhance recruitment, training, mentorship, and professional development of individuals

from disadvantaged communities[3] through systemic changes or interventions at multiple stages along the academia-to-workforce development pipeline.
    - Proposed monitoring activities to identify and measure progress towards clearly defined outreach and engagement goals across project participation, collaboration, execution, and assessment.

Deliverables

Recipient projects will be required to produce the following deliverables:

- Quarterly reports and presentations to WETO outlining progress made on all awarded tasks.
- Annual technical reports.
- A strategy for the Great Lakes Region's growing participation in the offshore wind supply chain, including pathways to increased economic, community, and workforce development opportunities.
- Participation in in WETO Program Peer Review activities occurring during the project timeline or within 1-2 years.
- Data made available to the public, government agencies and other researchers, preferably through established platforms. Teams should work with relevant groups to ensure that any applicable project data/outputs are added to relevant public repositories (e.g., Tethys, RWSC).
- Other tools identified in the award negotiation process that support the growth of the cluster, both in number of members and in active offshore wind supply chain participation.
- Applications should include the necessary scope to produce the required deliverables.

Team Requirements

- Strong applicants will identify the anticipated role of current and future partners across the offshore wind sector, including institutions of higher education; research institutions; community colleges; national

[3] *Disadvantaged communities* means the census tracts that are defined and identified by the White House Council on Environmental Quality's Climate and Economic Justice Screening Tool (CEJST) and all Federally Recognized Tribes and Tribal entities. For additional information about the Justice40 Initiative and the CEJST, please reference DOE's Justice40 General Guidance. The Justice40 Initiative directs that 40% of the overall benefits of certain federal investments flow to disadvantaged communities that are marginalized by underinvestment and overburdened by pollution. For information about whether a particular DOE program is covered under the Justice40 Initiative, see the White House's Justice40 Initiative webpage and DOE's Justice40 Initiative list of covered programs. Pursuant to Executive Order 14008 on *Tackling the Climate Crisis at Home and Abroad* and Justice40 Initiative interim guidance by the White House Office of Management and Budget, White House Council on Environmental Quality, and White House Office of Domestic Climate Policy, M-21-28 and M-23-09.

laboratories; the private sector; non-governmental organizations; organized labor; manufacturing extension partnerships, utilities; informal education centers; tribes; impacted and underserved communities; and state and local governments.

- Strong applicants include an organizational plan that demonstrates how the cluster will manage its partnerships and achieve its mission (e.g., including an advisory board, steering committees, organizational chart).
- Strong applicants will provide a holistic and integrated view of how they will seek and incorporate diverse perspectives throughout the design of the cluster, both in structural organization and in execution of mission.
- Strong applicants will demonstrate the commitment to and propose reasonable strategies to achieve continuation of programming beyond the term of award(s) under this funding opportunity, including life-cycle plan and supplementary sources of funding beyond those provided through this funding opportunity.
- Strong applicants will demonstrate the qualifications of the principal applicant, including explanation of existing credentials, facilities, and reputation; influence as a convener of relevant parties; expertise and unique contributions of partnering institutions; and how the consortium will leverage existing programs and partnerships.

Applications Not of Interest

- 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 Sections I.A. and I.B. of the FOA.
  - Applications that do not clearly align with DOE's offshore wind strategy and funding priorities.
  - Applications that duplicate rather than complement existing DOE-funded efforts aimed at offshore wind challenges, such as the National Offshore Wind Research and Development Consortium.
  - Applications that do not strongly leverage partnerships with industry employers and stakeholders.

Topic Area 5: Floating Offshore Wind Center of Excellence

Congress has recognized the opportunities and challenges to offshore wind and has directed DOE WETO to invest in "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."[4] The intent of this Topic Area is to support the development of university-led Offshore Wind

[4] H.R. 4366, Consolidated Appropriations Act, 2024, Explanatory Statement; Congressional Record Vol. 170, No. 39, S1574.

Centers of Excellence. Centers of Excellence are hubs of subject matter expertise within specific focus areas that conduct research, provide insight, and develop best practices and innovative solutions. Please read all sections of this topic area closely for further information including Applications Not of Interest.

WETO and BSEE are looking to seed a university education and research ecosystem that will support the technical needs of the U.S. floating offshore wind industry and other stakeholders and develop the next generation of technical leadership for the industry in the United States.

In 2023, WETO released DE-FOA-0002954 WETO Offshore Wind 2023 Centers of Excellence FOA to create the first U.S. Offshore Wind Center of Excellence. WETO is releasing this Topic Area to complement those efforts.

Effort under this topic would support BSEE's objectives of access to synergistic research that will provide baseline insight addressing technology renewable energy gaps on offshore wind infrastructure, atmospheric and ocean conditions which will support BSEE's regulatory oversight of offshore renewable energy facilities on the OCS.

The technological focus of the Floating Offshore Wind Center of Excellence will focus on the mitigation of issues, challenges, and barriers distinct to the deployment of floating offshore wind in the United States.

The Center(s) of Excellence will assemble expertise and partnerships to provide industry and community insight to solve floating offshore wind development and deployment challenges facing the United States. Institutes of Higher Education are in a unique position to advance the mission and strategic goals through their deep technical and scientific expertise and administrative capacity (e.g., in sharing capabilities between partnering organizations and fostering cross sector collaborations, including industry partners, public sector representatives, and community voices). The unique technological challenges associated with floating offshore wind energy deployment would benefit from Institutions of Higher Education leadership in both cutting edge research initiatives and training the next generation of floating offshore wind experts in the United States.

Undergraduate and graduate-level education in floating offshore wind energy is a key workforce development need for the U.S. offshore wind industry going forward, as the U.S. industry and university programs are expanding. Europe has a thriving ecosystem of university-led, collaborative offshore wind research and technical education that is closely linked with the offshore wind industry. This ecosystem produces a significant number of students who graduate with high-quality technical skills as well as direct experience working with industry partners. A goal of this Topic Area is to grow a similar ecosystem to provide domestic training opportunities that can begin to meet the workforce needs of the U.S. floating offshore wind industry.

Potential Scope Elements

WETO and BSEE are seeking applications for University-led Centers of Excellence that can demonstrate:

- Clear articulation of the Center's ability to focus on the challenges associated with floating offshore wind development and the proposed strategies to address these challenges.
- Creation of cutting-edge, multi-, and inter-disciplinary research initiatives aligned with the Center's mission and DOE's Offshore Wind Strategy designed to provide innovative solutions to high priority challenges in floating offshore wind energy development and deployment, including engineering, infrastructure, supply chain, transmission and grid integration, ecological effects, community impacts and benefits, and other pertinent issues.
- Strong partnerships with other educational and research institutions; national laboratories; the private sector; non-governmental organizations; tribes; and state and local-level public sector representatives relevant to floating offshore wind development, necessary to finalize and execute on the proposed strategies to address national and regional workforce needs to expand sustainable offshore wind development.
- Dedication to the creation and implementation of multi- and interdisciplinary curriculum and education programming that comprehensively addresses needs of floating offshore wind and increases the supply of undergraduate and graduate level expertise in the U.S. offshore wind workforce.

WETO and BSEE anticipate funding one Center of Excellence but reserves the right to fund more Centers as appropriations allow. Each center should include partnerships between multiple relevant institutions, with one university acting as lead.

Application Requirements:

- Specialization:
    - A statement of technological and expertise needs, strengths, and priorities to accelerate and support U.S. floating offshore wind development and deployment, and how this focus can support regional and national energy transitions.
    - Demonstrated differentiation with other U.S. Offshore Wind Center of Excellence, particularly in the realm of broadening geographic coverage with the goal of promoting bi-coastal collaboration.

- Research:
    - Statement of a research scope that aligns with the DOE Offshore Wind Strategy and is non-duplicative of the DOE's WETO's portfolio and related funded efforts of other organizations (e.g. the National Offshore Wind Research and Development Consortium).
    - Identification of research needs and defined collaborative processes to identify priority research challenges.
    - Proposed expansion of pathways for researchers, students, and faculty to engage with government and industry across the offshore wind sectors and support relevant, sustainable deployment research.
    - Proposed collaborations with other federal agencies, states, tribes, industry, and nationally focused stakeholders to develop research projects that build on existing research collaborations, which inform future planning and lessons learned.
- Center Sustainability:
    - Demonstration of the commitment to and propose reasonable strategies to achieve continuation of programming beyond the term of awards under this funding opportunity, including lifecycle plan and supplementary sources of funding beyond those provided through this funding opportunity.

Team Requirements

- Leadership:
    - Statement of qualifications of the principal university in the U.S. floating offshore wind space, including explanation of existing credentials, facilities, and reputation; influence as a convener of relevant parties; expertise and unique contributions of partnering institutions; and how the Center will leverage existing programs and partnerships.
- Partnership Structure:
    - Identification of the anticipated role of current and future partners across the floating offshore wind sector, including institutions of higher education; research institutions; community colleges; national laboratories; the private sector; non-governmental organizations; organized labor; utilities; informal education centers; tribes; impacted and underserved communities; and state and local governments.

- Organizational plan that demonstrates how the Center will manage its partnerships and achieve its mission (e.g. including an advisory board, steering committees, organizational chart).

- Equity and Inclusion:
  - A holistic and integrated view of how they will seek and incorporate diverse perspectives throughout the design of the Center of Excellence, both in structural organization and in execution of mission, including:
    - Discussion of engagement with different types of institutions and organizations (e.g., research-intensive, undergraduate focused, minority-serving, community-based) and enfranchisement of diverse viewpoints within the organizational structure and decision-making processes.
    - Outreach and planned engagement activities to enhance recruitment, training, mentorship, and professional development of individuals from underserved communities or historically underrepresented groups through systemic changes or interventions at multiple stages along the academia-to-workforce development pipeline.
    - Proposed monitoring activities to identify and measure progress towards clearly defined equity goals across project participation, collaboration, execution, and assessment.

- Undergraduate and Graduate Education:
  - Proposed multi- and interdisciplinary undergraduate and graduate educational programming with description of how those programs will stimulate the development of a diverse, sustainable U.S. offshore wind workforce—this could include mission and objectives; types of degrees; internships and fellowships; and coordination between educational organizations and industry collaboration leading to networking, hands-on experience, and student placement.

Budget Periods:

The estimated period of performance for each award will be up to five years, including an initial budget period for the development, in consultation with appropriate stakeholders, of a detailed Center of Excellence Implementation

Plan for the center's research and development, educational, and engagement activities; and a second budget period for execution of the Plan, as approved by DOE.

Federal funding for efforts in Budget Period (BP) 1 may not exceed $300,000.

Continuation into Budget Period 2 will be evaluated based on the successful execution of these activities and the quality of the Center of Excellence Implementation Plan. If EERE selects multiple Centers to fund, prime awardees should expect to modify their Implementation Plan to ensure Centers complement one another and avoid duplicative educational programming and research efforts.

During Budget Period 2 (up to 54 months), the recipient will execute the Plan as approved by DOE, conducting research and development, engagement, and educational programming in support of its proposed goals, in collaboration with partners and stakeholders.

Deliverables

Recipient projects will be required to produce the following deliverables:

- Center of Excellence Implementation Plan (Budget Period 1), which will be expected to include the following:
    - An overall integrated project management plan that defines leadership roles and responsibilities and provides a risk management plan for work to be executed by the Center and its partners.
    - Documentation of partnership arrangements with key partners (including, but not limited to, wind developers and technology providers; national laboratories; tribal, state, and local government; and non-governmental and community-based organizations) and an accompanying demonstration of buy-in from key stakeholder groups on the proposed areas of focus and approach.
    - An overall research, development, and engagement plan that identifies the specific offshore wind energy challenges the center will seek to address, including an outline of specific programming aimed at those challenges.
    - An education plan that outlines how the Center will support the education of undergraduate and graduate-level students, how the educational opportunities created by the Center will be integrated with the Center's overall approach to addressing floating offshore wind challenges within its areas of focus, and how those

opportunities will benefit both students and of the Center's other partners and stakeholders.
    - Detailed explanation of how the Center aligns with DOE Offshore Wind Strategy (Advancing Offshore Wind Energy in the United States) and avoids duplication with other efforts addressing similar challenges, both DOE funded and otherwise.
- Quarterly reports and presentations to DOE, BSEE and appropriate partners and stakeholders outlining progress made on all awarded tasks (Budget Period 1 and 2);
- Annual reports that summarize and highlight the work of the Center during the reporting year, including tracking all notable activities and outputs (e.g. public meetings, workshops journal publications, patents, datasets, media engagements) from Center activities and associated metrics (e.g. citations, meeting attendance, follow-up engagements) appropriate to those outputs (Budget Period 2);
- Participation in WETO Program Peer Review activities occurring during or within 1-2 years following the completion of the project (Budget Period 1 and 2); and
- Centers will also be encouraged to make applicable data available to the public, government agencies, and other researchers, preferably through established platforms (Budget Period 1 and 2). All work under EERE funding agreements must be performed in the United States. See Section IV.I.iii and Appendix B.
- Applications should include the necessary scope to produce the required deliverables.

Applications Specifically Not of Interest

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 Sections I.A. and I.B. of the FOA.
- Applications that do not propose to advance floating offshore wind higher education in the United States.
- Applications that do not clearly align with DOE's floating offshore wind strategy and funding priorities.
- Applications that duplicate rather than complement existing DOE-funded efforts aimed at offshore wind challenges, such as the National Offshore Wind Research and Development Consortium and the DE-FOA-0002954 Center of Excellence.
- Applications that only propose curriculum development for the lead university.

- Applications that read as an unconnected group of individual research or educational projects rather than a broad set of strategic and integrated activities aimed at addressing floating offshore wind challenges in the Center's proposed areas of focus.
- Applications that do not strongly leverage partnerships with industry and stakeholders.
- Applications that place primary focus on educational programming unrelated to higher education outcomes (e.g. K-12 education, vocational schools, apprenticeships).

Topic Area 6: Protecting Future Offshore Wind Farms against Lightning

Lightning damage is frequently cited among the existing offshore wind farm developers, turbine manufacturers, and insurers as one of the top concerns for wind turbine blade reliability due to the frequency and severity of lightning strikes in the United States. This concern may be exacerbated in offshore environments due to larger turbines, faster tip speeds, increased adoption of carbon fiber, and potentially greater lightning potential in some areas. Since the impacts of lightning on operations and maintenance requirements for offshore turbines and wind farms is generally unknown, this Topic Area is focused on increasing the understanding of lightning and wind turbine interactions in U.S. waters. Please read all sections of this topic area closely for further information including Applications Not of Interest.

DOE has previously funded research seeking to understand the impact of lightning strikes on carbon fiber material degradation in wind turbine blades. DOE has also made awards to help commercialize lightning protection technologies to protect thermally welded wind turbine blades and to improve the performance of existing lightning protection systems. This topic is focused specifically on developing an improved physical understanding of the interactions of wind turbines and their lightning protection systems with lightning, as opposed to investigations into material degradation or development of new protection systems.

Large offshore wind farms are susceptible to multiple lightning strikes, effective strike protection mitigation systems, barriers, and coatings can potentially mitigate the damage intensity to offshore wind turbine blades, structures, and its components. Multiple mitigation systems and barriers can ensure effective sustainable operation offshore thereby enabling continuous energy generation. This meets BSEE's Sustainability Strategic Goal #4 (4.1 - 4.3) by assessing required designs and technologies for long-term sustainable renewable energy structures, equipment, and components.

This Topic Area will focus on developing a robust understanding of the interaction between wind turbines and lightning within wind farms in an offshore environment to serve as a basis for developing solutions that lower potentially costly operations and maintenance impacts. Field and laboratory experiments and observations will produce data which may be used to develop various tools and models that predict risks and inform technical solution development.

The focus of the lightning research may be applicable to fixed-bottom or floating offshore wind systems, ideally both, and should consider the unique physical and environmental factors of each configuration type and the regions in which they are likely to be installed. Development of new lightning protection hardware should not be the focus of the scope but may be incorporated if integral to the research and less than 20% of the total award value.

Potential Scope Elements

- Lab or field experiments to investigate detailed physical interactions of lightning with wind turbine blades in a marine environment.
- Modeling of lightning interactions with wind turbines, turbine arrays, and substations in a marine environment.
- Evaluation of available lightning protection systems for applicability to large-scale turbines and wind farms in the marine environment.
- Experiments or observational data analyses to characterize lightning incidence within U.S. regional waters.

Application Requirements

The application should provide, at minimum, the following details to the extent they are relevant to the proposed project:

- Statement of the benefits of the proposed research to the offshore wind industry in the United States.
- Research plan to advance the sector knowledge.
- Type of analysis to be undertaken including test plan and demonstrated support and availability of the facilities required to undertake the tests.
- Risk assessment for successfully carrying out the planned research.

Deliverables

Recipient projects will be required to produce the following deliverables:

- Quarterly reports and presentations to WETO and BSEE outlining progress made on all awarded tasks.
- Annual technical reports.
- Peer reviewed, publicly available final report that includes a detailed technical summary of all tasks, results of research and testing, and plans

to enable future application of the research (covering all items detailed in the Application Requirements).
- Participation in WETO Program Peer Review activities occurring during the project timeline or within 1-2 years.
- Submission of at least one manuscript, open access preferred, on research results for publication in a peer-reviewed journal that is publicly available.
- Teams will make applicable data available to the public, government agencies and other researchers, preferably through established platforms.
- Applications should include the necessary scope to produce the required deliverables.

Team Requirements

The team composition should be appropriate to fulfill the work proposed. As a minimum, details of the following must be included:

- Support from members of a proposed advisory committee that includes relevant stakeholders for application of the knowledge gained through the research.

Applications Not of Interest

- Testing of existing lightning protection systems to existing International Electrotechnical Commission standards.
- Development of new lightning protection hardware or refinement of existing products that expends more than 20% of the total award.

C. Applications Specifically Not of Interest

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

- Applications that fall outside the technical parameters specified in Sections I.A. and I.B. of the FOA.
- Applications for proposed technologies that are not based on sound scientific principles (e.g., violates the laws of thermodynamics).

D. Diversity, Equity, and Inclusion

It is the policy of the Biden Administration that:

[T]he Federal Government should pursue a comprehensive approach to advancing equity[5] for all, including people of color and others who have been historically

[5] The term "equity" means 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, such as

underserved, marginalized, and adversely affected by persistent poverty and inequality. Affirmatively advancing equity, civil rights, racial justice, and equal opportunity is the responsibility of the whole of our government. Because advancing equity requires a systematic approach to embedding fairness in decision-making processes, executive departments, and agencies must recognize and work to redress inequities in their policies and programs that serve as barriers to equal opportunity.

By advancing equity across the Federal Government, we can create opportunities for the improvement of communities that have been historically underserved, which benefits everyone.[6]

As part of this whole of government approach, this FOA seeks to encourage the participation of underserved communities[7] and underrepresented groups. Applicants are highly encouraged to include individuals from groups historically underrepresented[8,9] in STEM on their project teams. As part of the application,

Black, Latino, and Indigenous and Native American persons, Asian Americans and Pacific Islanders and other persons of color; members of religious minorities; lesbian, gay, bisexual, transgender, and queer (LGBTQ+) persons; persons with disabilities; persons who live in rural areas; and persons otherwise adversely affected by persistent poverty or inequality.

[6] Executive Order 13985, "Advancing Racial Equity and Support for Underserved Communities Through the Federal Government" (Jan. 20, 2021).

[7] The term "underserved communities" refers to populations sharing a particular characteristic, as well as geographic communities, that have been systematically denied a full opportunity to participate in aspects of economic, social, and civic life, as exemplified by the list of in the definition of "equity." E.O. 13985. For purposes of this FOA, as applicable to geographic communities, applicants can refer to economically distressed communities identified by the Internal Revenue Service as Qualified Opportunity Zones; communities identified as disadvantaged or underserved communities by their respective States; communities identified on the Index of Deep Disadvantage referenced at https://news.umich.edu/new-index-ranks-americas-100-most-disadvantaged-communities/, and communities that otherwise meet the definition of "underserved communities" stated above.

[8] According to the National Science Foundation's 2019 report titled, "Women, Minorities and Persons with Disabilities in Science and Engineering", women, persons with disabilities, and underrepresented minority groups—blacks or African Americans, Hispanics or Latinos, and American Indians or Alaska Natives—are vastly underrepresented in the STEM (science, technology, engineering and math) fields that drive the energy sector. That is, their representation in STEM education and STEM employment is smaller than their representation in the U.S. population. https://ncses.nsf.gov/pubs/nsf19304/digest/about-this-report For example, in the U.S., Hispanics, African Americans and American Indians or Alaska Natives make up 24 percent of the overall workforce, yet only account for 9 percent of the country's science and engineering workforce. DOE seeks to inspire underrepresented Americans to pursue careers in energy and support their advancement into leadership positions. https://www.energy.gov/articles/introducing-minorities-energy-initiative

[9] See also. Note that Congress recognized in section 305 of the American Innovation and Competitiveness Act of 2017, Public Law 114-329:

> (1) [I]t is critical to our Nation's economic leadership and global competitiveness that the United States educate, train, and retain more scientists, engineers, and computer scientists; (2) there is currently a disconnect between the availability of and growing demand for STEM-skilled workers; (3) historically, underrepresented populations are the largest untapped STEM talent pools in the

applicants are required to describe how diversity, equity, and inclusion objectives will be incorporated in the project. Specifically, applicants are required to submit a Diversity, Equity, and Inclusion Plan that describes the actions the applicant will take to foster a welcoming and inclusive environment, support people from underrepresented groups in STEM, advance equity, and encourage the inclusion of individuals from these groups in the project; and the extent the project activities will be located in or benefit underserved communities. See Section IV.D.vii. for more information specific to the Diversity, Equity, and Inclusion Plan. The plan should include at least one SMART (Specific, Measurable, Assignable, Realistic and Time-Related) milestone per budget period supported by metrics to measure the success of the proposed actions. This plan will be evaluated as part of the technical review process and incorporated into the award if selected.

Further, Minority Serving Institutions[10], Minority Business Enterprises, Minority Owned Businesses, Woman Owned Businesses, Veteran Owned Businesses, or entities located in an underserved community that meet the eligibility requirements (See Section III.) are encouraged to apply as the prime applicant or participate on an application as a proposed partner to the prime applicant. The Selection Official may consider the inclusion of these types of entities as part of the selection decision. See Section V.C.i for more information specific to PPFs.

E. Authorizing Statutes

The programmatic authorizing statute is Energy Act of 2020, Public Law 116-260, division Z, Title III, section 3003 (Dec. 27, 2020). Codified at 42 U.S.C § 16237.

Awards made under this announcement will fall under the purview of 2 CFR Part 200 as amended by 2 CFR Part 910.

Since its establishment in 2011, BSEE has been the lead federal agency charged with improving safety and ensuring environmental protection related to the offshore energy industry on the OCS. On September 14, 2022, Department of the Interior's Departmental Manual chapters were posted to the Electronic Library of the Interior Policies[11] which state:

United States; and (4) given the shifting demographic landscape, the United States should encourage full participation of individuals from underrepresented populations in STEM fields.

[10] Minority Serving Institutions (MSIs), including Historically Black Colleges and Universities/Other Minority Institutions as educational entities recognized by the Office of Civil Rights (OCR), U.S. Department of Education, and identified on the OCR's Department of Education U.S. accredited postsecondary minorities' institution list. See https://www2.ed.gov/about/offices/list/ocr/edlite-minorityinst.html.

[11] U.S. Department of the Interior, "Electronic Library of the Interior Policies: Departmental Manual" (September 2022). https://www.doi.gov/sites/doi.gov/files/elips/documents/219-dm-1_0.pdf

"The Director, Bureau of Safety and Environmental Enforcement, is delegated, through the Assistant Secretary – Land and Minerals Management, the Secretary of the Interior's (Secretary) authority to oversee and regulate offshore operations and perform all related functions, including the following:

A. Under the Outer Continental Shelf (OCS) Lands Act, as amended (43 U.S.C. §§ 1331 et seq.)[12] , to conserve OCS mineral resources; to oversee offshore oil, natural gas, sulphur, and other energy and mineral exploration, development, and production; to oversee long-term carbon sequestration; to oversee production, transportation, or transmission of energy on OCS lands from sources other than oil and gas, such as renewable energy, or the use of OCS facilities for energy-related or other authorized marine-related purposes, including oversight of personnel safety; and to enforce safety and environmental standards related to those operations. The Director's oversight authority includes permitting, research, inspections for safety and environmental compliance, the implementation of offshore regulatory programs related to field operations, and training of inspectors. The Director's enforcement authority includes the authority to investigate, summon witnesses, require the production of evidence, assess civil penalties, and cancel or suspend activities."

II. Award Information

A. Award Overview

i. Estimated Funding

EERE expects to make a total of approximately $48.6 M of federal funding available for new awards under this FOA, subject to the availability of appropriated funds. EERE anticipates making approximately 12 to 21 awards under this FOA. EERE may issue one, multiple, or no awards. Individual awards may vary between $200K and $5M.

EERE may issue awards in one, multiple, or none of the following topic areas:

Topic Area Number	Topic Area Title	Anticipated Number of Awards	Anticipated Minimum Award Size for Any One Individual Award (Fed Share)	Anticipated Maximum Award Size for Any One Individual Award (Fed Share)	Approximate Total Federal Funding Available for All Awards
1	Floating Offshore Wind Platform	Subtopic 1a: 4-6	Subtopic 1a: $2M	Subtopic 1a: $4M	$20M

[12] 43 U.S.C. § 1331 [Outer Continental Shelf Lands Act].

	Research and Development	Subtopic 1b: 1-3	Subtopic 1b: $0.5M	Subtopic 1b: $1.5M	
2	Innovation for Fixed-Bottom Offshore Wind Foundation Types and Supporting Infrastructure	2-3	$2.5M	$5M	$7.5M
3	Technology Advancement for Bird and Bat Research Offshore	2-4	$1M	$3M	$8M
4	Development of a Manufacturing and Supply Chain Offshore Wind Consortium Based in the Great Lakes Region	1-2	Single state $1.5M Region containing more than a single state $2.5M	Single state $2.5M Region containing more than a single state $5M	$5M
5	Floating Offshore Wind Center of Excellence	1	$1.8M	$3.8M	$3.8M
6	Protecting Future Offshore Wind Farms against Lightning	1-2	$2.15M	$4.3M	$4.3M

EERE may establish more than one budget period for each award and fund only the initial budget period(s). Funding for all budget periods, including the initial budget period, is not guaranteed.

ii. Period of Performance

EERE anticipates making awards that will run from 1 year up to 5 years, comprised of one or more budget periods. Project continuation will be contingent upon several elements, including satisfactory performance and Go/No-Go decision. For a complete list, see Section VI.B.xiv.

Topic Area	Title	Est. Period of Performance (months)	Anticipated Number of Budget Periods
Subtopic 1a	Refinement and Innovation in Floating Platform Design	24-60	1-3
Subtopic 1b	Next-Generation Integrated Turbine/Platform Technologies	12-36	1-3

Topic Area 2	Innovation for Fixed-Bottom Offshore Wind Foundation Types and Supporting Infrastructure	24-60	1-2
Topic Area 3*	Technology Advancement for Bird and Bat Research Offshore	36-60	2
Topic Area 4	Development of a Manufacturing and Supply Chain Offshore Wind Consortium Based in the Great Lakes Region	24-60	1-2
Topic Area 5*	Floating Offshore Wind Center of Excellence	24-60	2
Topic Area 6	Protecting Future Offshore Wind Farms against Lightning	12-48	2

*These Topic Areas have more specific budget period instructions within the Topic Area descriptions above in section I.B.

iii. New Applications Only

EERE will accept only new applications under this FOA. EERE will not consider applications for renewals of existing EERE-funded awards through this FOA.

B. EERE Funding Agreements

Through cooperative agreements and other similar agreements, EERE provides financial and other support to projects that have the potential to realize the FOA objectives. EERE does not use such agreements to acquire property or services for the direct benefit or use of the U. S. government.

i. Cooperative Agreements

EERE generally uses cooperative agreements to provide financial and other support to prime recipients.

Through cooperative agreements, EERE provides financial or other support to accomplish a public purpose of support or stimulation authorized by federal statute. Under cooperative agreements, the government and prime recipients share responsibility for the direction of projects.

EERE has substantial involvement in all projects funded via cooperative agreement. See Section VI.B.x. of the FOA for more information on what substantial involvement may involve.

ii. Funding Agreements with Federally Funded Research and Development Center (FFRDCs)[13]

In most cases, FFRDCs are funded independently of the remainder of the project team. The FFRDC then executes an agreement with any non-FFRDC project team members to arrange work structure, project execution, and any other matters. Regardless of these arrangements, the entity that applied as the prime recipient for the project will remain the prime recipient for the project. See Section III.E.

iii. Grants

Although EERE has the authority to provide financial support to prime recipients through grants, EERE generally does not fund projects through grants. EERE may fund a limited number of projects through grants, as appropriate.

III. Eligibility Information

To be considered for substantive evaluation, an applicant's submission must meet the criteria set forth below. If the application does not meet these eligibility requirements, it will be considered ineligible and removed from further evaluation.

A. Eligible Applicants

i. Domestic Entities

The proposed prime recipient and subrecipient(s) must be domestic entities. The following types of domestic entities are eligible to participate as a prime recipient or subrecipient for Topic Areas 1-4 and 6 of this FOA:

1. Institutions of higher education;
2. For-profit entities;
3. Nonprofit entities; and
4. State and local governmental entities and federally recognized Indian Tribes (Indian Tribes).

For Topic Area 5, eligibility for prime recipients is restricted to domestic institutions of higher education or consortia led by a domestic institution of higher education.

[13] FFRDCs are public-private partnerships that conduct research for the U.S. government. A listing of FFRDCs can be found at http://www.nsf.gov/statistics/ffrdclist/.

To qualify as a domestic entity, the entity must be organized, chartered, or incorporated (or otherwise formed) under the laws of a particular state or territory of the United States; have majority domestic ownership and control; and have a physical place of business in the United States.

DOE/NNSA FFRDCs are eligible to apply for funding as follows:

For Topic Areas 1, 2, 3 and 6 FFRDCs are eligible to participate as a prime recipient and/or subrecipient.

For Topic Areas 4 and 5 FFRDCs are eligible to participate as a subrecipient only.

Non-DOE/NNSA FFRDCs are eligible to participate as a subrecipient but are not eligible to apply as a prime recipient.

Federal agencies and instrumentalities (other than DOE and BSEE) are eligible to participate as a subrecipient but are not eligible to apply as a prime recipient.

Entities banned from doing business with the U.S. government such as entities debarred, suspended, or otherwise excluded from or ineligible for participating in federal programs are not eligible.

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.

ii. Foreign Entities

In limited circumstances, DOE may approve a waiver to allow a foreign entity to participate as a prime recipient or subrecipient. A foreign entity may submit a Full Application to this FOA, but the Full Application must be accompanied by an explicit written waiver request. Likewise, if the applicant seeks to include a foreign entity as a subrecipient, the applicant must submit a separate explicit written waiver request in the Full Application for each proposed foreign subrecipient.

Appendix B lists the information that must be included in a foreign entity waiver request. The applicant does not have the right to appeal DOE's decision concerning a waiver request.

B. Cost Sharing

Applicants are bound by the cost share proposed in their Full Applications if selected for award negotiations.

The cost share must be at least 20% of the total project costs[14] for research and development projects.[15] The cost share must come from non-federal sources unless otherwise allowed by law.

To help applicants calculate proper cost share amounts, EERE has included a cost share information sheet and sample cost share calculation as Appendix A to this FOA.

i. Legal Responsibility

Although the cost share requirement applies to the entire project, including work performed by members of the project team other than the prime recipient, the prime recipient is legally responsible for paying the entire cost share. If the funding agreement is terminated prior to the end of the project period, the prime recipient is required to contribute at least the cost share percentage of total expenditures incurred through the date of termination.

The prime recipient is solely responsible for managing cost share contributions by the project team and enforcing cost share obligation assumed by project team members in subawards or related agreements.

ii. Cost Share Allocation

Each project team is free to determine how best to allocate the cost share requirement among the team members. The amount contributed by individual project team members may vary, as long as the cost share requirement for the entire project is met.

iii. Cost Share Types and Allowability

Every cost share contribution must be allowable under the applicable federal cost principles, as described in Section IV.I.i. of the FOA. In addition, cost share must be verifiable upon submission of the Full Application. Cost share may be provided in the form of cash or cash equivalents, or in-kind contributions. Cost share must come from non-federal sources (unless otherwise allowed by law), such as project participants, state or local governments, or other third-party financing. Federal financing, such as DOE Loan Guarantee, cannot be leveraged by applicants to provide the required cost share or otherwise support the same scope that is proposed under a project.

[14] Total project costs is the sum of the government share, including FFRDC costs if applicable, and the recipient share of project costs.

[15] Energy Policy Act of 2005, Pub. L. 109-58, sec. 988. Also see 2 CFR 200.306 and 2 CFR 910.130 for additional cost sharing requirements.

Cost share may be provided by the prime recipient, subrecipients, or third parties (entities that do not have a role in performing the scope of work). Vendors/contractors may not provide cost share. Any partial donation of goods or services is considered a discount and is not allowable.

Cash contributions include but are not limited to personnel costs, fringe costs, supply and equipment costs, indirect costs, and other direct costs.

In-kind contributions are those where a value of the contribution can be readily determined, verified, and justified but where no actual cash is transacted in securing the good or service comprising the contribution. Allowable in-kind contributions include but are not limited to the donation of volunteer time or the donation of space or use of equipment.

Project teams may use funding or property received from state or local governments to meet the cost share requirement, so long as the federal government did not provide the funding to the state or local government.

The recipient may not use the following sources to meet its cost share obligations:

- 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 (e.g., federal grants, equipment owned by the federal government); or
- Expenditures that were reimbursed under a separate federal program.

Project teams may not use the same cash or in-kind contributions to meet cost share requirements for more than one project or program.

Cost share contributions must be specified in the project budget, verifiable from the prime recipient's records, and necessary and reasonable for proper and efficient accomplishment of the project. As all sources of cost share are considered part of total project cost, the cost share dollars will be scrutinized under the same federal regulations as federal dollars to 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.

Applicants are encouraged to refer to 2 CFR 200.306 as amended by 2 CFR 910.130 for additional cost sharing requirements.

iv. Cost Share Contributions by FFRDCs

Because FFRDCs are funded by the federal government, costs incurred by FFRDCs 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.

v. Cost Share Verification

Applicants are required to provide written assurance of their proposed cost share contributions in their Full Applications.

Upon selection for award negotiations, applicants are required to provide additional information and documentation regarding their cost share contributions. Please refer to Appendix A of the FOA.

vi. Cost Share Payment

DOE requires prime recipients to contribute the cost share amount incrementally over the life of the award. Specifically, the prime recipient's cost share for each billing period must always reflect the overall cost share ratio negotiated by the parties (i.e., the total amount of cost sharing on each invoice when considered cumulatively with previous invoices must reflect, at a minimum, the cost sharing percentage negotiated). As FFRDC funding will be provided directly to the FFRDC(s) by DOE, prime recipients will be required to provide project cost share at a percentage commensurate with the FFRDC costs, on a budget period basis, resulting in a higher interim invoicing cost share ratio than the total award ratio.

In limited circumstances, and where it is in the government's interest, the 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. Regardless of the interval requested, the prime recipient must be up to date on cost share at each interval. Such requests must be sent to the Contracting Officer during award negotiations and include the following information: (1) a detailed justification for the request; (2) a proposed schedule of payments, including amounts and dates; (3) a written commitment to meet that schedule; and (4) such evidence as necessary to demonstrate that the prime recipient has complied with its cost share obligations to date. The Contracting Officer must approve all such requests before they go into effect.

C. Compliance Criteria

All applicant submissions must:

- Comply with the applicable content and form requirements listed in Section IV. of the FOA;

- Include all required documents;
- Be uploaded and submitted to EERE eXCHANGE https://eere-eXCHANGE.energy.gov; and
- Be submitted by the deadline stated in the FOA.

EERE will not review or consider submissions submitted through means other than EERE eXCHANGE, submissions submitted after the applicable deadline, or incomplete submissions.

Applicants are strongly encouraged to submit their Concept Papers and Full Applications at least 48 hours in advance of the submission deadline. Under normal conditions (i.e., at least 48 hours before the submission deadline), applicants should allow at least one hour to submit a Concept Paper or Full Application. Once the Concept Paper or Full Application is submitted in EERE eXCHANGE, applicants may revise or update that submission until the expiration of the applicable deadline. If changes are made to any of these documents, the applicant must resubmit the Concept Paper or Full Application before the applicable deadline. EERE will not extend the submission deadline for applicants that fail to submit required information by the applicable deadline due to server/connection congestion.

D. Responsiveness Criteria

All "Applications Specifically Not of Interest," as described in Section I.C. of the FOA, are deemed nonresponsive and are not reviewed or considered.

E. Other Eligibility Requirements

i. Requirements for DOE/NNSA FFRDCs Listed as the Applicant

A DOE/NNSA FFRDC is eligible to apply for funding under this FOA if its cognizant Contracting Officer provides written authorization and this authorization is submitted with the application.

The following wording is acceptable for the authorization:

> Authorization is granted for the Laboratory to participate in the proposed project. The work proposed for the Laboratory is consistent with or complementary to the missions of the Laboratory and will not adversely impact execution of the DOE assigned programs at the Laboratory.

If a DOE/NNSA FFRDC is selected for award negotiation, the proposed work will be authorized under the DOE work authorization process and performed under the laboratory's Management and Operating (M&O) contract.

ii. Requirements for DOE/NNSA and Non-DOE/NNSA FFRDCs Included as a Subrecipient

DOE/NNSA and non-DOE/NNSA FFRDCs may be proposed as a subrecipient on another entity's application subject to the following guidelines:

a. Authorization for non-DOE/NNSA FFRDCs
The federal agency sponsoring the FFRDC must authorize in writing the use of the FFRDC on the proposed project and this authorization must be submitted with the application. The use of a FFRDC must be consistent with its authority under its award.

b. Authorization for DOE/NNSA FFRDCs
The cognizant Contracting Officer for the FFRDC must authorize in writing the use of the FFRDC on the proposed project and this authorization must be submitted with the application. The following wording is acceptable for this authorization:

> Authorization is granted for the Laboratory to participate in the proposed project. The work proposed for the Laboratory is consistent with or complementary to the missions of the Laboratory and will not adversely impact execution of the DOE assigned programs at the Laboratory.

c. Funding, Cost Share, and Subaward with FFRDCs
The value of and funding for the FFRDC portion of the work will not normally be included in the award. DOE/NNSA FFRDCs participating as a subrecipient on a project will be funded directly through the DOE field work proposal (WP) process. Non-DOE/NNSA FFRDCs participating as a subrecipient will be funded through an interagency agreement with the sponsoring agency. Although the FFRDC portion of the work is excluded from the award, the applicant's cost share requirement will be based on the total cost of the project, including the applicant's, the subrecipient's, and the FFRDC's portions of the project.

Unless instructed otherwise by the DOE Contracting Officer for the DOE award, all FFRDCs are required to enter into a Cooperative Research and Development Agreement[16] (CRADA) or, if the role of the DOE/NNSA FFRDC is

[16] A cooperative research and development agreement is a contractual agreement between a national laboratory contractor and a private company or university to work together on research and development. For more information, see https://www.energy.gov/gc/downloads/doe-cooperative-research-and-development-agreements

limited to technical assistance and intellectual property is not anticipated to be generated from the DOE/NNSA FFRDC's work, a Technical Assistance Agreement (TAA), with at least the prime recipient. This will be required as a Quarter 1 deliverable in the approved award agreement. Any questions regarding the use of a CRADA or TAA should be directed to the cognizant DOE field intellectual property (IP) counsel.

The CRADA or TAA is used to ensure accountability for project work and provide the appropriate management of IP, e.g., data protection and background IP. The CRADA or TAA must be agreed upon by all parties and submitted to DOE or other sponsoring agency, when applicable, for approval, or submitted to DOE for notice under the Master Scope of Work process, when applicable, using any DOE or other sponsoring agency approved CRADA or TAA template without substantive changes.

d. Responsibility
The prime recipient will be the responsible authority regarding the settlement and satisfaction of all contractual and administrative issues including but not limited to disputes and claims arising out of any agreement between the prime recipient and the FFRDC.

e. Limit on FFRDC Effort
The scope of work to be performed by the FFRDC should not be more significant than the scope of work to be performed by the applicant.

F. Limitation on Number of Concept Papers and Full Applications Eligible for Review

An entity may submit only one Concept Paper and one Full Application for each Topic Area or Subtopic Area of this FOA. If an entity submits more than one Concept Paper and one Full Application to the same Topic Area or Subtopic Area, EERE will request a determination from the applicant's authorizing representative as to which concept paper and/or full application should be reviewed. Any other submissions received listing the same entity as the applicant for the same Topic Area or Subtopic Area will not be 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 applicant on one Concept Paper and one Full Application for each Topic Area or Subtopic Area of this FOA.

G. Questions Regarding Eligibility

EERE will not make eligibility determinations for potential applicants prior to the date on which applications to this FOA must be submitted. The decision whether to apply in response to this FOA lies solely with the applicant.

IV. Application and Submission Information

A. Application Process

The application process includes two submission phases: Concept Paper and Full Application. **Only applicants who have submitted an eligible Concept Paper will be eligible to submit a Full Application**.

All submissions must conform to the form and content requirements described below, including maximum page lengths.

- Each must be submitted in Adobe PDF format unless stated otherwise;
- Each must be written in English;
- All pages must be formatted to fit on 8.5" x 11" paper with margins not less than one inch on every side. Use Calibri typeface, a black font color, and a font size of 12-point or larger (except in figures or tables, which may be 10-point font). A symbol font may be used to insert Greek letters or special characters, but the font size requirement still applies. References must be included as footnotes or endnotes in a font size of 10 or larger. Footnotes and endnotes are counted toward the maximum page requirement;
- A **control number** will be issued when an applicant begins the EERE eXCHANGE application process. The control number must be included with all application documents. Specifically, the control number must be prominently displayed on the upper right corner of the header of every page and included in the file name (i.e., *Control Number_Applicant Name_Full Application*);
- Page numbers must be included in the footer of every page; and
- Each submission must not exceed the specified maximum page limit, including cover page, charts, graphs, maps, and photographs when printed using the formatting requirements set forth above and single spaced. If applicants exceed the maximum page lengths indicated below, EERE will review only the authorized number of pages and disregard any additional pages.

i. Additional Information on EERE eXCHANGE

EERE eXCHANGE is designed to enforce the deadlines specified in this FOA. The "Apply" and "Submit" buttons will automatically disable at the defined submission deadlines.

Applicants who experience technical difficulties with submission PRIOR to the FOA deadline should contact the EERE eXCHANGE helpdesk for assistance (EERE-eXCHANGESupport@hq.doe.gov).

B. Application Forms

The application forms and instructions are available at EERE Funding Application and Management Forms and on EERE eXCHANGE. To access these materials on EERE eXCHANGE, go to https://eere-eXCHANGE.energy.gov and select the appropriate funding opportunity number.

Note: The maximum file size that can be uploaded to the EERE eXCHANGE website is 50MB. Files larger than 50MB cannot be uploaded and hence cannot be submitted for review. If a file is larger than 50MB but is still within the maximum page limit specified in the FOA, it must be broken into parts and denoted to that effect. For example:
TechnicalVolume_Part_1
TechnicalVolume_Part_2

DOE will not accept late submissions that resulted from technical difficulties due to uploading files that exceed 50MB.

C. Content and Form of the Concept Paper

The Concept Paper must conform to the requirements listed below, including the stated page limits.

Content and Form For Topic Areas 1,2,3 and 6		
Section	**Page Limit**	**Description**
Cover Page	1 page maximum	The cover page should include the project title, the specific announcement Topic Area being addressed (if applicable), both the technical and business points of contact, names of all team member organizations, the project location(s), and any statements regarding confidentiality.
Technology Description	2 pages maximum	Applicants are required to succinctly describe: • The proposed project/technology, including its basic operating principles and how it is unique and innovative; • The proposed technology's target level of performance (applicants should provide technical data or other support to show how the proposed target could be met); • The current state of the art in the relevant field and application, including key shortcomings, limitations, and challenges;

		• How the proposed technology will overcome the shortcomings, limitations, and challenges in the relevant field and application; • The potential impact that the proposed project would have on the relevant field and application; • How the proposed location of the proposed project will support technology development and long-term success; • The key technical risks/issues associated with the proposed technology development plan; and • The impact that EERE funding would have on the proposed project.
Addendum	2 pages maximum	Applicants are required to identify any potential impacts on Indian Tribes,[17] and describe how the applicant would engage with a potentially impacted Indian Tribe(s). Applicants may provide graphs, charts, or other data to supplement their Technology Description. Applicants are required to describe succinctly the qualifications, experience, and capabilities of the proposed project team, including: • Whether the Principal Investigator (PI) and project team have the skill and expertise needed to successfully execute the project plan; • Whether the applicant has prior experience which demonstrates an ability to perform tasks of similar risk and complexity; • Whether the applicant has worked together with its teaming partners on prior projects or programs; and • Whether the applicant has adequate access to equipment and facilities necessary to accomplish the effort and/or clearly explain how it intends to obtain access to the necessary equipment and facilities.

EERE makes an independent assessment of each Concept Paper based on the criteria in Section V.A.i. of the FOA. EERE will encourage a subset of applicants to submit Full Applications. Other applicants will be discouraged from submitting a Full Application. See Section VI.A.

Content and Form For Topic Area 4		
Section	**Page Limit**	**Description**
Cover Page	1 page maximum	The cover page should include the project title, the specific announcement Topic Area being addressed, both the

[17] Indian Tribe is as defined in 25 U.S.C. § 5304(e).

		technical and business points of contact, names of all team member organizations, the project location(s), and any statements regarding confidentiality.
Cluster Description	3 pages maximum	Applicants are required to describe succinctly: • The goals and objectives for the proposed offshore wind manufacturing cluster; • The Applicant's understanding of the current state of offshore wind manufacturing in the Great Lakes region, including key opportunities, shortcomings, limitations, and challenges; • A description of how the proposed cluster will initially approach cluster membership, day-to-day operations and management, and how stakeholders will be engaged; • How the proposed cluster will address the Great Lakes region's specific manufacturing opportunities, shortcomings, limitations, and challenges in the offshore wind arena; • The estimated impact that the proposed cluster would have in expanding offshore wind development in the United States; • The key technical risks/issues associated with the proposed cluster development plan and operations and plan for the mitigation of these risks; • A holistic and integrated view of diversity, equity, and inclusion, focusing on how diverse perspectives will be supported throughout the design of the cluster, both in structural organization and in execution of mission; and • The impact that EERE funding would have on the proposed project.
Team and Resources	2 pages maximum	Applicants are required to describe succinctly the qualifications, experience, and capabilities of the proposed Project Team, including: • Whether the Project Team has the skill and expertise needed to successfully establish and operate the proposed Cluster; • Whether the applicant has prior experience which demonstrates an ability to perform tasks of similar risk and complexity; • Whether the applicant has worked together with its teaming partners on prior projects or programs; and • Whether the applying entity has the necessary capabilities and facilities to accomplish the effort.
Addendum	3 pages maximum	• Applicants are required to identify any potential impacts on Indian Tribes, and describe how the applicant would engage with a potentially impacted Indian Tribe(s).

		• Applicants may provide graphs, charts, or other data to supplement their cluster description

EERE makes an independent assessment of each Concept Paper based on the criteria in Section V.A.i. of the FOA. EERE will encourage a subset of applicants to submit Full Applications. Other applicants will be discouraged from submitting a Full Application. See Section VI.A.

Content and Form For Topic Area 5		
Section	**Page Limit**	**Description**
Cover Page	1 page maximum	The cover page should include the project title, the specific announcement Topic Area being addressed (if applicable), both the technical and business points of contact, names of all team member organizations, the project location(s), and any statements regarding confidentiality.
Center Description	3 pages maximum	Applicants are required to describe succinctly: • The proposed Center specialization and mission, including its research objectives, educational programming and how it is unique and innovative; • What existing challenges in offshore wind energy development and deployment the center seeks to address, including identification of potential solutions, limitations, and key stakeholders that need to be engaged; • How the proposed Center will leverage resources and partnerships to overcome the shortcomings, limitations, and challenges in the U.S. offshore wind industry; • The impact of Center partnerships on relevance and direction of the Center research and student training, educational outcomes, and placement within the U.S. offshore wind workforce; • A holistic and integrated view of diversity, equity, and inclusion, focusing on how diverse perspectives will be supported throughout the design of the Center of Excellence, both in structural organization and in execution of mission; • The key risks/issues associated with the proposed Center development plan; and • The impact that EERE funding would have on the proposed project.
Addendum	3 pages maximum	Applicants are required to identify any potential impacts on Indian Tribes, and describe how the applicant would engage with a potentially impacted Indian Tribe(s).

		Applicants may provide graphs, charts, or other data to supplement their Center Description Applicants are required to describe succinctly the qualifications, experience, and capabilities of the proposed Project Team, including: • Whether the Project Team have the skill and expertise needed to successfully establish and operate the proposed Center; • Whether the applicant has prior experience which demonstrates an ability to perform tasks of similar risk and complexity; • Whether the applicant has worked together with its teaming partners on prior projects or programs; and • Whether the applying universities have the necessary capabilities and facilities to accomplish the effort.

EERE makes an independent assessment of each Concept Paper based on the criteria in Section V.A.i. of the FOA. EERE will encourage a subset of applicants to submit Full Applications. Other applicants will be discouraged from submitting a Full Application. See Section VI.A.

D. Content and Form of the Full Application

Applicants must complete the following application forms found at EERE Funding Application and Management Forms and on the EERE eXCHANGE website at https://eere-eXCHANGE.energy.gov/.

Applicants will have approximately 30 days from receipt of the Concept Paper Encourage/Discourage notification on EERE eXCHANGE to prepare and submit a Full Application. Regardless of the date the applicant receives the Encourage/Discourage notification, the submission deadline for the Full Application remains the date and time stated on the FOA cover page.

All Full Application documents must be marked with the Control Number issued to the applicant.

i. Full Application Content Requirements

Each Full Application must be limited to a single concept. Full Applications must conform to the following requirements and must not exceed the stated page limits.

Component	File Format	Page Limit	File Name
SF-424: Application for Federal Assistance	PDF	n/a	ControlNumber_LeadOrganization_App424
Technical Volume	PDF	20	ControlNumber_LeadOrganization_TechnicalVolume
Resumes	PDF	3 pages each	ControlNumber_LeadOrganization_Resumes
Letters of Commitment	PDF	1 page each	ControlNumber_LeadOrganization_LOCs
Statement of Project Objectives	MS Word	10	ControlNumber_LeadOrganization_SOPO
Diversity Equity and Inclusion Plan	PDF	5	ControlNumber_LeadOrganization_DEIP
Budget Justification Workbook	MS Excel	n/a	ControlNumber_LeadOrganization_Budget_Justification
Summary/Abstract for Public Release	PDF	1	ControlNumber_LeadOrganization_Summary
Summary Slide	MS PowerPoint	1	ControlNumber_LeadOrganization_Slide
Subrecipient Budget Justification	MS Excel	n/a	ControlNumber_LeadOrganization_Subrecipient_Budget_Justification
DOE Work Proposal for FFRDC, (see DOE O 412.1A, Attachment 2)	PDF	n/a	ControlNumber_LeadOrganization_WP
Authorization from cognizant Contracting Officer for FFRDC	PDF	n/a	ControlNumber_LeadOrganization_FFRDCAuth
SF-LLL Disclosure of Lobbying Activities	PDF	n/a	ControlNumber_LeadOrganization_SF-LLL
Foreign Entity Waiver Requests and Foreign Work Waiver Request	PDF	n/a	ControlNumber_LeadOrganization_Waiver
Current and Pending Support	PDF	n/a	ControlNumber_LeadOrganization_CPS
Transparency of Foreign Connections	PDF	n/a	ControlNumber_LeadOrganization_TFC
Potentially Duplicative Funding Notice	PDF	n/a	ControlNumber_LeadOrganization_PDFN
Potential Tribal Impact Considerations (if applicable)	PDF	n/a	ControlNumber_LeadOrganization_PTIC

Note: The maximum file size that can be uploaded to the EERE eXCHANGE website is 50MB. See Section IV.B.

EERE provides detailed guidance on the content and form of each component below.

ii. SF-424: Application for Federal Assistance

Applicants must complete the SF-424 Application for Federal Assistance, which is available on EERE Funding Application and Management Forms.

Effective January 1, 2020, the System for Award Management (SAM) is the central repository for common government-wide certifications and representations required of Federal grants recipients. As registration in SAM is required for eligibility for a federal award and registration must be updated annually, Federal agencies use SAM information to comply with award requirements and avoid increased burden and costs of separate requests for such information, unless the recipient fails to meet a federal award requirement, or there is a need to make updates to their SAM registration for other purposes.

Note: The dates and dollar amounts on the SF-424 are for the complete project period and not just the first project year, first phase, or other subset of the project period.

Save the SF-424 in a single PDF file using the following convention for the title "ControlNumber_LeadOrganization_424".

iii. Technical Volume

The Technical Volume must conform to the following content and form requirements. This volume must address the technical review criteria as discussed in Section V.A. of the FOA.

Save the Technical Volume in a single PDF file using the following convention for the title "ControlNumber_LeadOrganization_TechnicalVolume".

Applicants must provide sufficient citations and references to the primary research literature to justify the claims and approaches made in the Technical Volume. However, EERE and reviewers are under no obligation to review cited sources.

The Technical Volume to the Full Application may not be more than 20 pages, including the cover page, table of contents, and all citations, charts, graphs, maps, photos, or other graphics, and must include all information in the table below. The applicant should consider the weighting of each of the technical review criteria (see Section V.A.ii. of the FOA) when preparing the Technical Volume.

The Technical Volume should clearly describe and expand upon information provided in the Concept Paper.

Technical Volume Content Requirements for Topic Areas 1,2,3 and 6	
SECTION/PAGE LIMIT	**DESCRIPTION**
Cover Page	The cover page should include the project title, the specific FOA Topic Area being addressed (if applicable), both the technical and business points of contact (including the Administrative Officer, if applicable), names of all team member organizations, names of the project managers, PI, Senior/Key Personnel and their organizations, the project location(s), and any statements regarding confidentiality.
Project Overview (Approximately 10% of the Technical Volume)	The Project Overview should contain the following information: • Background: The applicant should discuss the background of its organization, including the history, successes, and current research and development status (i.e., the technical baseline) relevant to the technical topic being addressed in the Full Application. • Project Goal: The applicant should explicitly identify the targeted improvements to the baseline technology, process, or project and the critical success factors in achieving that goal. • DOE Impact: The applicant should discuss the impact that DOE funding would have on the proposed project. Applicants should specifically explain how DOE funding, relative to prior, current, or anticipated funding from other public and private sources, is necessary to achieve the project objectives.
Technical Description, Innovation, and Impact (Approximately 30% of the Technical Volume)	The Technical Description should contain the following information: • Relevance and Outcomes: The applicant should provide a detailed description of the technology, process, or project, including the scientific and other principles and objectives that will be pursued during the project. This section should describe the relevance of the proposed project to the goals and objectives of the FOA, including the potential to meet specific DOE technical targets or other relevant performance targets. The applicant should clearly specify the expected outcomes of the project. • Feasibility: The applicant should demonstrate the technical feasibility of the proposed technology, process, or project and capability of achieving the anticipated performance targets, including a description of previous work done and prior results. • Innovation and Impacts: The applicant should describe the current state-of-the-art in the applicable field, the specific innovation of the proposed technology, process, or project, the advantages of proposed technology, process, or project, over current and emerging technologies, and the overall impact on advancing the state-of-the-art/technical baseline if the project is successful.
Workplan and Commercialization Plan	The Workplan should include a summary of the Project Objectives, Technical Scope, Work Breakdown Structure (WBS), Milestones, Go/No-Go

(Approximately 40% of the Technical Volume)	decision points, and Project Schedule. A detailed SOPO is separately requested. The Workplan should contain the following information: • Project Objectives: The applicant should provide a clear and concise (high-level) statement of the goals and objectives of the project as well as the expected outcomes. • Technical Scope Summary: The applicant should provide a summary description of the overall work scope and approach to achieve the objective(s). The overall work scope is to be divided by performance periods that are separated by discrete, approximately annual decision points (see below for more information on Go/No-Go decision points). The applicant should describe the specific expected end result of each performance period. • WBS and Task Description Summary: The Workplan should describe the work to be accomplished and how the applicant will achieve the milestones, will accomplish the final project goal(s), and will produce all deliverables. The Workplan is to be structured with a hierarchy of performance period (approximately annual), task and subtasks, which is typical of a standard WBS for any project. The Workplan shall contain a concise description of the specific activities to be conducted over the life of the project. The description shall be a full explanation and disclosure of the project being proposed (i.e., a statement such as "we will then complete a proprietary process" is unacceptable). It is the applicant's responsibility to prepare an adequately detailed task plan to describe the proposed project and the plan for addressing the objectives of this FOA. The summary provided should be consistent with the SOPO. The SOPO will contain a more detailed description of the WBS and tasks. The proposal shall include a cost estimate for each task in a table format. • Milestone Summary: The applicant should provide a summary of appropriate milestones throughout the project to demonstrate success. A milestone may be either a progress measure (which can be activity based) or a Specific, Measurable, Attainable, Realistic, and Timely (SMART) technical milestone. SMART milestones should be Specific, Measurable, Achievable, Relevant, and Timely, and must demonstrate a technical achievement rather than simply completing a task. Unless otherwise specified in the FOA, the minimum requirement is that each project must have at least one milestone per quarter for the duration of the project with at least one SMART technical milestone per year (depending on the project, more milestones may be necessary to comprehensively demonstrate progress). The applicant should also provide the means by which the milestone will be verified. The summary provided should be consistent with the Milestone Summary Table in the SOPO. • Go/No-Go Decision Points (See Section VI.B.xiv. for more information on the Go/No-Go Review): The applicant should

	provide a summary of project-wide Go/No-Go decision points at appropriate points in the Workplan. At a minimum, each project must have at least one project-wide Go/No-Go decision point for each budget period (12 to 18-month period) of the project. The applicant should also provide the specific technical criteria to be used to evaluate the project at the Go/No-Go decision point. The summary provided should be consistent with the SOPO. Go/No-Go decision points are considered "SMART" and can fulfill the requirement for an annual SMART milestone. • End of Project Goal: The applicant should provide a summary of the end of project goal(s). At a minimum, each project must have one SMART end of project goal. The summary provided should be consistent with the SOPO. • Project Schedule (Gantt Chart or similar): The applicant should provide a schedule for the entire project, including task and subtask durations, milestones, and Go/No-Go decision points. • Buy America Requirements for Infrastructure Projects: Within the first two pages of the Workplan, include a short statement on whether the project will involve the construction, alteration, and/or repair of infrastructure in the United States. See Appendix C for applicable definitions and other information to inform this statement. • Project Management: The applicant should discuss the team's proposed management plan, including the following: o The overall approach to and organization for managing the work; o The roles of each project team member; o Any critical handoffs/interdependencies among project team members; o The technical and management aspects of the management plan, including systems and practices, such as financial and project management practices; o The approach to project risk management; o A description of how project changes will be handled; o If applicable, the approach to Quality Assurance/Control; o How communications will be maintained among project team members. • Commercialization Plan: The applicant should provide a commercialization plan, including the following: o Identification of target market, competitors, and distribution channels for proposed technology along with

	known or perceived barriers to market penetration, including a mitigation plan; ○ Identification of a product development and/or service plan, commercialization timeline, financing, product marketing, legal/regulatory considerations including intellectual property, infrastructure requirements, data dissemination, and product distribution.
Technical Qualifications and Resources (Approximately 20% of the Technical Volume)	The Technical Qualifications and Resources should contain the following information: • A description of the project team's unique qualifications and expertise, including those of key subrecipients; • A description of the project team's existing equipment and facilities, or equipment or facilities already in place on the proposed project site, that will facilitate the successful completion of the proposed project; include a justification of any new equipment or facilities requested as part of the project; • Relevant, previous work efforts, demonstrated innovations, and how these enable the applicant to achieve the project objectives; • The time commitment of the key team members to support the project; • A description of the technical services to be provided by DOE/NNSA FFRDCs, if applicable; • The skills, certifications, or other credentials of the construction and ongoing operations workforce; • For multi-organizational projects, describe succinctly: ○ The roles and the work to be performed by the PI and Senior/Key Personnel at the prime and sub levels; ○ Business agreements between the applicant and sub; ○ How the various efforts will be integrated and managed; ○ Process for making decisions on technical direction; ○ Publication arrangements; ○ Intellectual property issues; and ○ Communication plans

Technical Volume Content Requirements for Topic Area 4	
SECTION/PAGE LIMIT	**DESCRIPTION**
Cover Page	The cover page should include the project title, the specific FOA Topic Area being addressed (if applicable), both the technical and business points of

	contact (including the Administrative Officer, if applicable), names of all team member organizations, names of the project managers, PI, Senior/Key Personnel and their organizations, the project location(s), and any statements regarding confidentiality.
Cluster Overview (10% of Technical Volume)	The Cluster Overview should contain the following information: • Background: The applicant should discuss the background of their organization, including their history, successes, as well as other information relevant to their ability to establish and administer an offshore wind manufacturing supply chain cluster. • Project Goal: The applicant should succinctly delineate how they will establish and execute a manufacturing cluster to accelerate the deployment of offshore wind in the United States. • DOE Impact: The applicant should discuss the impact that DOE funding would have on the proposed project. Applicants should specifically explain how DOE funding, relative to prior, current, or anticipated funding from other public and private sources, is necessary to achieve the project objectives.
Cluster Description, Innovation, and Impact (30% of Technical Volume)	The Cluster Description should contain the following information: • Relevance and Outcomes: The applicant should provide a detailed description of the Cluster, including the relevance of the proposed Cluster to the goals and objectives of the FOA. The applicant should clearly specify the expected outcomes of the Cluster. • Feasibility: The applicant should demonstrate the feasibility of the proposed Cluster and their capability to achieve the anticipated performance targets. • Innovation and Impacts: The applicant should describe the current state-of-the-art in the field of manufacturing in the Great Lakes Region, including key opportunities, shortcomings, limitations, and challenges; as well as the estimated impact that the proposed cluster would have in expanding the manufacturing supply chain of offshore wind development in the United States.
Cluster Workplan (40% of Technical Volume)	The Workplan should include a summary of the Cluster Objectives, Technical Scope, Work Breakdown Structure (WBS), Milestones, and Project Schedule. A detailed SOPO is separately requested. The Workplan should contain the following information: • Cluster Objectives: The applicant should provide a clear and concise (high-level) statement of the goals and objectives of the Cluster as well as the expected outcomes. • Technical Scope Summary: The applicant should provide a summary description of the overall work scope and approach to achieve the objective(s). The overall work scope is to be divided by performance periods. The applicant should describe the specific expected end result of each performance period.

	• WBS and Task Description Summary: The Workplan should describe the work to be accomplished and how the applicant will achieve the milestones and financial sustainability, will accomplish the final project goal(s), and will produce all deliverables. The Workplan is to be structured with a hierarchy of performance period (approximately annual), task and subtasks, which is typical of a standard WBS for any project. The Workplan shall contain a concise description of the specific activities to be conducted over the life of the Cluster. The description shall be a full explanation and disclosure of the Cluster being proposed (i.e., a statement such as "we will then complete a proprietary process" is unacceptable). It is the applicant's responsibility to prepare an adequately detailed task plan to describe the proposed Center and the plan for addressing the objectives of this FOA. The summary provided should be consistent with the SOPO. The SOPO will contain a more detailed description of the WBS and tasks Go/ No Go Decision Points (See Section VI.B.xiv. for more information on the Go/No-Go Review): The applicant should provide a summary of project-wide Go/No-Go decision points at appropriate points in the Workplan. The applicant should also provide the specific technical criteria to be used to evaluate the project at the Go/No Go decision point. The summary provided should be consistent with the SOPO. Go/No-Go decision points are considered "SMART" and can fulfill the requirement for an annual SMART milestone. • Milestone Summary and Financial Lifecycle Plan: The applicant should provide a summary of appropriate milestones throughout the project to demonstrate success and financial sustainability by the end of funding term. A milestone may be either a progress measure or a SMART milestone. SMART milestones should be Specific, Measurable, Achievable, Relevant, and Timely, and must demonstrate an achievement rather than simply completing a task. Unless otherwise specified in the FOA, the minimum requirement is that each proposal must have at least one milestone per quarter for the duration of the project with at least one SMART milestone per year (depending on the project, more milestones may be necessary to comprehensively demonstrate progress). The applicant should also provide the means by which the milestone will be verified. The summary provided should be consistent with the Milestone Summary Table in the SOPO. The Financial Lifecycle Plan should include initiation, planning, execution, and closure; and propose methods of maintaining the Cluster's financial sustainability. • Schedule (Gantt Chart or similar): The applicant should provide a schedule for the proposal period, including task and subtask durations and milestones.

	• Buy America Requirements for Infrastructure Projects: Within the first two pages of the Workplan, include a short statement on whether the project will involve the construction, alteration, and/or repair of infrastructure in the United States.
	
	See Appendix C for applicable definitions and other information to inform this statement.
	
	• Cluster Management: The applicant should discuss the team's proposed management plan, including the following:
	  ○ The overall approach to and organization for managing the work
	  ○ The roles of each project team member
	  ○ Any critical handoffs/interdependencies among project team members
	  ○ The technical and management aspects of the management plan, such as financial and project management practices.
	  ○ The approach to risk management
	  ○ A description of how changes will be handled
	  ○ How communications will be maintained among Cluster members

Team Qualifications and Resources (20% of Technical Volume)	The Technical Qualifications and Resources should contain the following information: • A description of the project team's unique qualifications and expertise, including those of key subrecipients; • A description of the project team's existing equipment and facilities, or equipment or facilities already in place on the proposed project site, that will facilitate the successful completion of the proposed project; include a justification of any new equipment or facilities requested as part of the project; • Relevant, previous work efforts, demonstrated innovations, and how these enable the applicant to achieve the project objectives; • The time commitment of the key team members to support the project; • A description of the technical services to be provided by DOE/NNSA FFRDCs, if applicable; • The skills, certifications, or other credentials of the construction and ongoing operations workforce; • For multi-organizational projects, describe succinctly: ○ The roles and the work to be performed by the PI and Senior/Key Personnel at the prime and sub levels;

	○ Business agreements between the applicant and sub; ○ How the various efforts will be integrated and managed; ○ Process for making decisions on technical direction; ○ Publication arrangements; ○ Intellectual property issues; and ○ Communication plans

Technical Volume Content Requirements for Topic Area 5	
SECTION/PAGE LIMIT	**DESCRIPTION**
Cover Page	The cover page should include the project title, the specific FOA Topic Area being addressed (if applicable), both the technical and business points of contact (including the Administrative Officer, if applicable), names of all team member organizations, names of the project managers, PI, Senior/Key Personnel and their organizations, the project location(s), and any statements regarding confidentiality.
Center Overview (10% of Technical Volume)	The Center Overview should contain the following information: • Background: The applicant should discuss the background of their organization, including the history, successes, partnerships, and current research and development status relevant to the specialization of the Center being proposed in the Full Application. • Project Goal: The applicant should explicitly identify the purpose of the Center and the critical success factors in achieving that goal. • DOE Impact: The applicant should discuss the impact that DOE funding would have on the proposed Center. Applicants should specifically explain how DOE funding, relative to prior, current, or anticipated funding from other public and private sources, is necessary to achieve the Center objectives.

Center Description, Innovation, and Impact (30% of Technical Volume)	The Center Description should contain the following information: • Relevance and Outcomes: The applicant should provide a detailed description of the Center, including offshore wind challenges associated with the deployment of floating offshore wind technology that will be addressed through the Center. This section should describe the relevance of the proposed Center to the goals and objectives of the FOA. The applicant should clearly specify the expected outcomes of the Center. • Feasibility: The applicant should demonstrate the feasibility of the proposed Center and their capability to achieve the anticipated performance targets, including a description of previous experience leading in their proposed research area. • Innovation and Impacts: The applicant should describe the current state-of-the-art in the applicable research scope proposed for the Center, the advantages offered by establishing a Center of Excellence with a focus on floating offshore wind, a justification of how well their proposed research scope fits DOE priorities, and the overall impact on advancing the deployment of floating offshore wind energy if the Center is successful.
Workplan (40% of Technical Volume)	The Workplan should include a summary of the Center Objectives, Technical Scope, Work Breakdown Structure (WBS), Milestones, and Project Schedule. A detailed SOPO is separately requested. The Workplan should contain the following information: • Center Objectives: The applicant should provide a clear and concise (high-level) statement of the goals and objectives of the Center as well as the expected outcomes. • Technical Scope Summary: The applicant should provide a summary description of the overall work scope and approach to achieve the objective(s). The overall work scope is to be divided by performance periods. The applicant should describe the specific expected end result of each performance period. • WBS and Task Description Summary: The Workplan should describe the work to be accomplished and how the applicant will achieve the milestones and financial sustainability, will accomplish the final project goal(s), and will produce all deliverables. The Workplan is to be structured with a hierarchy of performance period (approximately annual), task and subtasks, which is typical of a standard WBS for any project. The Workplan shall contain a concise description of the specific activities to be conducted over the life of the Center. The description shall be a full explanation and disclosure of the Center being proposed (i.e., a statement such as “we will then complete a proprietary process” is unacceptable). It is the applicant’s responsibility to prepare an adequately detailed task plan to describe the proposed Center and the plan for addressing the objectives of

	this FOA. The summary provided should be consistent with the SOPO. The SOPO will contain a more detailed description of the WBS and tasks. Go/ No-Go Decision Points (See Section VI.B.xiv. for more information on the Go/No-Go Review): The applicant should provide a summary of project-wide Go/No-Go decision points at appropriate points in the Workplan. The applicant should also provide the specific technical criteria to be used to evaluate the project at the Go/No-Go decision point. The summary provided should be consistent with the SOPO. Go/No-Go decision points are considered "SMART" and can fulfill the requirement for an annual SMART milestone. • Milestone Summary and Financial Lifecycle Plan: The applicant should provide a summary of appropriate milestones throughout the project to demonstrate success and financial sustainability by the end of funding term. A milestone may be either a progress measure or a SMART milestone. SMART milestones should be Specific, Measurable, Achievable, Relevant, and Timely, and must demonstrate an achievement rather than simply completing a task. Unless otherwise specified in the FOA, the minimum requirement is that each proposal must have at least one milestone per quarter for the duration of the project with at least one SMART milestone per year (depending on the project, more milestones may be necessary to comprehensively demonstrate progress). The applicant should also provide the means by which the milestone will be verified. The summary provided should be consistent with the Milestone Summary Table in the SOPO. The Financial Lifecycle Plan should include four phases (initiation, planning, execution, and closure) and propose methods of maintaining the Center's financial sustainability. • Schedule (Gantt Chart or similar): The applicant should provide a schedule for the proposal period, including task and subtask durations and milestones. • Buy America Requirements for Infrastructure Projects: Within the first two pages of the Workplan, include a short statement on whether the project will involve the construction, alteration, and/or repair of infrastructure in the United States. See Appendix C for applicable definitions and other information to inform this statement. • Center Management: The applicant should discuss the team's proposed management plan, including the following: o The overall approach to and organization for managing the work o The roles of each project team member

	○ Any critical handoffs/interdependencies among project team members ○ The technical and management aspects of the management plan, such as financial and project management practices ○ The approach to risk management ○ A description of how changes will be handled ○ How communications will be maintained among Center members
Team Technical Qualifications and Resources (20% of Technical Volume)	The Technical Qualifications and Resources should contain the following information: • A description of the project team's unique qualifications and expertise, including those of key subrecipients; • A description of the project team's existing equipment and facilities, or equipment or facilities already in place on the proposed project site, that will facilitate the successful completion of the proposed project; include a justification of any new equipment or facilities requested as part of the project; • Relevant, previous work efforts, demonstrated innovations, and how these enable the applicant to achieve the project objectives; • The time commitment of the key team members to support the project; • A description of the technical services to be provided by DOE/NNSA FFRDCs, if applicable; • The skills, certifications, or other credentials of the construction and ongoing operations workforce; • For multi-organizational projects, describe succinctly: ○ The roles and the work to be performed by the PI and Senior/Key Personnel at the prime and sub levels; ○ Business agreements between the applicant and sub; ○ How the various efforts will be integrated and managed; ○ Process for making decisions on technical direction; ○ Publication arrangements; ○ Intellectual Property issues; and ○ Communication plans

iv. Resumes

A resume provides information reviewers can use to evaluate an individual's skills, experience, and potential for leadership within the scientific community.

Applicants must submit a resume (limited to three pages) for each Principal Investigator and Senior/Key Personnel that includes the following:

1. Contact information;
2. Education and training: Provide name of institution, major/area, degree, and year for undergraduate, graduate, and postdoctoral training;
3. Research and professional experience: Beginning with the current position, list professional/academic positions in chronological order with a brief description. List all current academic, professional, or institutional appointments, foreign or domestic, at the applicant institution or elsewhere, whether or not remuneration is received, and, whether full-time, part-time, or voluntary;
4. Awards and honors;
5. A list of up to 10 publications most closely related to the proposed project. For each publication, identify the names of all authors (in the same sequence in which they appear in the publication), the article title, book or journal title, volume number, page numbers, year of publication, and website address if available electronically. Patents, copyrights, and software systems developed may be provided in addition to or substituted for publications. An abbreviated style such as the Physical Review Letters (PRL) convention for citations (list only the first author) may be used for publications with more than 10 authors;
6. Synergistic activities: List up to five professional and scholarly activities related to the proposed effort; and
7. There should be no lapses in time over the past 10 years or since age 18, whichever period is shorter.

As an alternative to a resume, it is acceptable to use the biographical sketch format approved by the National Science Foundation (NSF). The biographical sketch format may be generated by the Science Experts Network Curriculum Vita (SciENcv), a cooperative venture maintained at https://www.ncbi.nlm.nih.gov/sciencv/, also available at https://www.nsf.gov/bfa/dias/policy/researchprotection/commonform_biographicalsketch.pdf. The use of a format required by another agency is intended to reduce the administrative burden to researchers by promoting the use of common formats.

Save the resumes in a single PDF file using the following convention for the title "ControlNumber_LeadOrganization_Resumes".

v. Letters of Commitment (if applicable)

Submit letters of commitment from all subrecipient and third-party cost share providers. If applicable, the letter must state that the third party is committed to

providing a specific minimum dollar amount or value of in-kind contributions allocated to cost sharing. The following information for each third party contributing to cost sharing should be identified: (1) the name of the organization; (2) the proposed dollar amount to be provided; and (3) the proposed cost sharing type (cash or in-kind contributions). Each letter must not exceed one page.

Save the letters of commitment in a single PDF file using the following convention for the title "ControlNumber_LeadOrganization_LOCs".

Letters of support or endorsement for the project from entities that do not have a substantive role in the project will not be accepted.

vi. Statement of Project Objectives (SOPO)

Applicants must complete a SOPO. A SOPO template is available on EERE Funding Application and Management Forms and on EERE eXCHANGE at https://eere-eXCHANGE.energy.gov/. The SOPO, including the Milestone Table, must not exceed 10 pages when printed using standard 8.5" x 11" paper with 1" margins (top, bottom, left, and right) with font not smaller than 12-point (except in figures or tables, which may be 10-point font).

Save the SOPO in a single Microsoft Word file using the following convention for the title "ControlNumber_LeadOrganization_SOPO".

vii. Diversity, Equity, and Inclusion Plan

As part of the application, applicants are required to describe how diversity, equity, and inclusion objectives will be incorporated in the project. Specifically, applicants are required to submit a Diversity, Equity, and Inclusion Plan that describes the actions the applicant will take to foster a welcoming and inclusive environment, support people from groups underrepresented in STEM, advance equity, and encourage the inclusion of individuals from these groups in the project; and the extent the project activities will be located in or benefit underserved communities (also see Section I.D.). The plan should include at least one SMART milestone per Budget Period supported by metrics to measure the success of the proposed actions and will be incorporated into the award if selected. The Diversity, Equity, and Inclusion Plan should contain the following information:

- Equity Impacts: the impacts of the proposed project on underserved communities, including social and environmental impacts.
- Benefits: The overall benefits of the proposed project, if funded, to underserved communities; and

- How diversity, equity, and inclusion objectives will be incorporated in the project.

The following is a non-exhaustive list of actions that can serve as examples of ways the proposed project could incorporate diversity, equity, and inclusion elements. These examples should not be considered either comprehensive or prescriptive. Applicants may include appropriate actions not covered by these examples.

a. Include persons from groups underrepresented in STEM as PI, co-PI, and/or other senior personnel;
b. Include persons from groups underrepresented in STEM as student researchers or post-doctoral researchers;
c. Include faculty or students from Minority Serving Institutions as PI/co-PI, senior personnel, and/or student researchers, as applicable;
d. Enhance or collaborate with existing diversity programs at your home organization and/or nearby organizations;
e. Collaborate with students, researchers, and staff in Minority Serving Institutions;
f. Disseminate results of research and development in Minority Serving Institutions or other appropriate institutions serving underserved communities;
g. Implement evidence-based, diversity-focused education programs (such as implicit bias training for staff) in your organization;
h. Identify Minority Business Enterprises, Minority Owned Businesses, Woman Owned Businesses and Veteran Owned Businesses to solicit as vendors and sub-contractors for bids on supplies, services, and equipment.

The Diversity, Equity, and Inclusion Plan must not exceed 5 pages. Save the Diversity, Equity and Inclusion Plan in a single PDF file using the following convention for the title "ControlNumber_LeadOrganization_DEIP".

viii. Budget Justification Workbook

Applicants must complete the Budget Justification Workbook, which is available on EERE Funding Application and Management Forms and on EERE eXCHANGE at https://eere-eXCHANGE.energy.gov/. Applicants must complete each tab of the Budget Justification Workbook for the project, including all work to be performed by the prime recipient and its subrecipients and contractors. Applicants should include costs associated with required annual audits and incurred cost proposals in their proposed budget documents. The "Instructions and Summary" included with the Budget Justification Workbook will auto-populate as the applicant enters information into the Workbook. Applicants

must carefully read the "Instructions and Summary" tab provided within the Budget Justification Workbook.

Save the Budget Justification Workbook in a single Microsoft Excel file using the following convention for the title "ControlNumber_LeadOrganization_Budget_Justification".

ix. Summary for Public Release

Applicants must submit a one-page summary of their project that is suitable for dissemination to the public. It should be a self-contained document that identifies the name of the applicant, the project director/principal investigator(s), the project title, the objectives of the project, project location(s), a description of the project, including methods to be employed, the potential impact of the project (e.g., benefits, outcomes), and major participants (for collaborative projects). This document must not include any proprietary or business-sensitive information as DOE may make it available to the public after selections are made. The summary must not exceed one page when printed using standard 8.5" x 11" paper with 1" margins (top, bottom, left, and right) with font not smaller than 12-point.

Save the Summary for Public Release in a single PDF file using the following convention for the title "ControlNumber_LeadOrganization_Summary".

x. Summary Slide

Applicants must provide a single slide summarizing the proposed project. The Summary Slide template is available on EERE eXCHANGE at https://eere-eXCHANGE.energy.gov/ and must include the following information:

- A technology/proposal summary;
- Project location (location of work)
- A description of the technology's/proposal's impact;
- Proposed project goals;
- Any key graphics (illustrations, charts and/or tables);
- The project's key idea/takeaway;
- Project title, prime recipient, PI, and Senior/Key Personnel information; and
- Requested EERE funds and proposed applicant cost share.

Save the Summary Slide in a single Microsoft PowerPoint file using the following convention for the title "ControlNumber_LeadOrganization_Slide".

xi. Subrecipient Budget Justification (if applicable)

Applicants must provide a separate budget justification for each subrecipient that is expected to perform work estimated to be more than $250,000 or 25% of the total work effort, whichever is less. The budget justification must include the same justification information described in the "Budget Justification" section above.

Save each subrecipient budget justification in a Microsoft Excel file using the following convention for the title: "ControlNumber_LeadOrganization_Subrecipient_Budget_Justification".

xii. Budget for DOE/NNSA FFRDC (if applicable)

If a DOE/NNSA FFRDC is to perform a portion of the work, the applicant must provide a DOE work proposal (WP) in accordance with the requirements in DOE Order 412.1A, Work Authorization System, Attachment 2, available at: https://www.directives.doe.gov/directives-documents/400-series/0412.1-BOrder-a-chg1-AdmChg.

Save the WP in a single PDF file using the following convention for the title "ControlNumber_LeadOrganization_WP".

xiii. Authorization for Non-DOE/NNSA or DOE/NNSA FFRDCs (if applicable)

The federal agency sponsoring the FFRDC must authorize in writing the use of the FFRDC on the proposed project and this authorization must be submitted with the application. The use of a FFRDC must be consistent with the contractor's authority under its award.

Save the Authorization in a single PDF file using the following convention for the title "ControlNumber_LeadOrganization_FFRDCAuth".

xiv. SF-LLL: Disclosure of Lobbying Activities

Recipients and subrecipients may not use any federal funds to influence or attempt to influence, directly or indirectly, congressional action on any legislative or appropriation matters.

Prime recipients and subrecipients are required to complete and submit SF-LLL, "Disclosure of Lobbying Activities" (https://www.grants.gov/forms/forms-repository/sf-424-family) to ensure that non-federal funds have not been paid and will not be paid to any person for influencing or attempting to influence any of the following in connection with the application:

- An officer or employee of any federal agency;
- A Member of Congress;
- An officer or employee of Congress; or
- An employee of a Member of Congress.

Save the SF-LLL in a single PDF file using the following convention for the title "ControlNumber_LeadOrganization_SF-LLL".

xv. Waiver Requests (if applicable)

Foreign Entity Participation
For projects selected under this FOA, all recipients and subrecipients must qualify as domestic entities. See Section III.A. To request a waiver of this requirement, the applicant must submit an explicit waiver request in the Full Application. Appendix B lists the information that must be included in a waiver request.

Performance of Work in the United States (Foreign Work Waiver Request)
As set forth in Section IV.I.iii., all work for projects selected under this FOA must be performed in the United States. To request a waiver of this requirement, the applicant must submit an explicit waiver request in the Full Application. Appendix B lists the information that must be included in a foreign work waiver request.

Save the Waivers in a single PDF file using the following convention for the title "ControlNumber_LeadOrganization_Waiver".

xvi. Current and Pending Support

Current and pending support is intended to allow the identification of potential duplication, overcommitment, potential conflicts of interest or commitment, and all other sources of support. As part of the application, the principal investigator or lead project manager and Senior/Key Personnel at the applicant and subrecipient level must provide a list of all sponsored activities, awards, and appointments, whether paid or unpaid; provided as a gift with terms or conditions or provided as a gift without terms or conditions; full-time, part-time, or voluntary; faculty, visiting, adjunct, or honorary; cash or in-kind; foreign or domestic; governmental or private-sector; directly supporting the individual's research or indirectly supporting the individual by supporting students, research staff, space, equipment, or other research expenses. All connections with foreign government-sponsored talent recruitment programs must be identified in current and pending support.

For every activity, list the following items:

- The sponsor of the activity or the source of funding;
- The award or other identifying number;
- The title of the award or activity. If the title of the award or activity is not descriptive, add a brief description of the research being performed that would identify any overlaps or synergies with the proposed research;
- The total cost or value of the award or activity, including direct and indirect costs and cost share. For pending proposals, provide the total amount of requested funding;
- The award period (start date through end date); and
- The person-months of effort per year dedicated to the award or activity.

To identify overlap, duplication of effort, or synergistic efforts, append a description of the other award or activity to the current and pending support.

Details of any obligations, contractual or otherwise, to any program, entity, or organization sponsored by a foreign government must be provided on request to either the applicant institution or DOE. Supporting documents of any identified source of support must be provided to DOE on request, including certified translations of any document.

PIs and Senior/Key Personnel must provide a separate disclosure statement listing the required information above regarding current and pending support. Each individual must sign and date their respective disclosure statement and include the following certification statement:

> I, [Full Name and Title], certify to the best of my knowledge and belief that the information contained in this Current and Pending Support Disclosure Statement is true, complete, and accurate. I understand that any false, fictitious, or fraudulent information, misrepresentations, half-truths, or omissions of any material fact, may subject me to criminal, civil, or administrative penalties for fraud, false statements, false claims or otherwise. (18 U.S.C. §§ 1001 and 287, and 31 U.S.C. 3729-3733 and 3801-3812). I further understand and agree that (1) the statements and representations made herein are material to DOE's funding decision, and (2) I have a responsibility to update the disclosures during the period of performance of the award should circumstances change which impact the responses provided above.

The information may be provided in the approved common disclosure format available at Common Form for Current and Pending (Other) Support (nsf.org).

Save the Current and Pending Support in a single PDF file using the following convention for the title "ControlNumber_LeadOrganization_CPS".

Definitions:

Current and pending support – (a) All resources made available, or expected to be made available, to an individual in support of the individual's RD&D efforts, regardless of (i) whether the source is foreign or domestic; (ii) whether the resource is made available through the entity applying for an award or directly to the individual; or (iii) whether the resource has monetary value; and (b) includes in-kind contributions requiring a commitment of time and directly supporting the individual's RD&D efforts, such as the provision of office or laboratory space, equipment, supplies, employees, or students. This term has the same meaning as the term Other Support as applied to researchers in NSPM-33: For researchers, Other Support includes all resources made available to a researcher in support of and/or related to all of their professional RD&D efforts, including resources provided directly to the individual or through the organization, and regardless of whether or not they have monetary value (e.g., even if the support received is only in-kind, such as office/laboratory space, equipment, supplies, or employees). This includes resource and/or financial support from all foreign and domestic entities, including but not limited to gifts provided with terms or conditions, financial support for laboratory personnel, and participation of student and visiting researchers supported by other sources of funding.

Foreign Government-Sponsored Talent Recruitment Program – An effort directly or indirectly organized, managed, or funded by a foreign government, or a foreign government instrumentality or entity, to recruit science and technology professionals or students (regardless of citizenship or national origin, or whether having a full-time or part-time position). Some foreign government-sponsored talent recruitment programs operate with the intent to import or otherwise acquire from abroad, sometimes through illicit means, proprietary technology or software, unpublished data and methods, and intellectual property to further the military modernization goals and/or economic goals of a foreign government. Many, but not all, programs aim to incentivize the targeted individual to physically relocate to the foreign state for the above purpose. Some programs allow for or encourage continued employment at United States research facilities or receipt of federal research funds while concurrently working at and/or receiving compensation from a foreign institution, and some direct participants not to disclose their participation to United States entities. Compensation could take many forms including cash, research funding, complimentary foreign travel, honorific titles, career advancement

opportunities, promised future compensation, or other types of remuneration or consideration, including in-kind compensation.

Senior/Key Personnel – An individual who contributes in a substantive, meaningful way to the scientific development or execution of a research, development, and demonstration (RD&D) project proposed to be carried out with a DOE award.[18]

xvii. Transparency of Foreign Connections

Applicants must provide the following information as it relates to the proposed recipient and subrecipients. Include a separate disclosure for the applicant and each proposed subrecipient. U.S. National Laboratories, domestic government entities, and institutions of higher education are only required to respond to items 1, 2 and 9, and if applying as to serve as the prime recipient, must provide complete responses for project team members that are not U.S. National Laboratories, domestic government entities, or institutions of higher education.

1. Entity name, website address, and physical address;
2. The identity of all owners, principal investigators, project managers, and Senior/Key Personnel who are a party to any *Foreign Government-Sponsored Talent Recruitment Program* of a foreign country of risk (i.e., China, Iran, North Korea, and Russia);
3. The existence of any joint venture or subsidiary that is based in, funded by, or has a foreign affiliation with any foreign country of risk; including the People's Republic of China;
4. Any current or pending contractual or financial obligation or other agreement specific to a business arrangement, or joint venture-like arrangement with an enterprise owned by a foreign state or any foreign entity;
5. Percentage, if any, that the proposed recipient or subrecipient has foreign ownership or control;
6. Percentage, if any, that the proposed recipient or subrecipient is wholly or partially owned, directly or indirectly, by an entity in a foreign country of risk;
7. Percentage, if any, of venture capital or institutional investment by an entity that has a general partner or individual holding a leadership role in such entity who has a foreign affiliation with any foreign country of risk;

[18] Typically, these individuals have doctoral or other professional degrees, although individuals at the masters or baccalaureate level may be considered Senior/Key Personnel if their involvement meets this definition. Consultants, graduate students, and those with a postdoctoral role also may be considered Senior/Key Personnel if they meet this definition.

8. Any technology licensing or intellectual property sales to a foreign country of risk, during the 5-year period preceding submission of the proposal;
9. Any foreign business entity, offshore entity, or entity outside the United States related to the proposed recipient or subrecipient;
10. Complete list of all directors (and board observers), including their full name, citizenship and shareholder affiliation, date of appointment, duration of term, as well as a description of observer rights as applicable;
11. Complete capitalization table for your entity, including all equity interests (including LLC and partnership interests, as well as derivative securities). Include both the number of shares issued to each equity holder, as well as the percentage of that series and all equity on a fully diluted basis. Identify the principal place of incorporation (or organization) for each equity holder. If the equity holder is a natural person, identify the citizenship(s). If the recipient or subrecipient is a publicly traded company, provide the above information for shareholders with an interest greater than 5 percent;
12. A summary table identifying all rounds of financing, the purchase dates, the investors for each round, and all the associated governance and information rights obtained by investors during each round of financing; and
13. An organization chart to illustrate the relationship between your entity and the immediate parent, ultimate parent, and any intermediate parent, as well as any subsidiary or affiliates. Identify where each entity is incorporated.

DOE reserves the right to request additional or clarifying information based on the information submitted.

Save the Transparency of Foreign Connections information in a single PDF file using the following convention for the title "ControlNumber_LeadOrganization_TFC."

xviii. Potentially Duplicative Funding Notice

If the applicant or project team member has other active awards of federal funds, the applicant must determine whether the activities of those awards potentially overlap with the activities set forth in its application to this FOA. If there is a potential overlap, the applicant must notify DOE in writing of the potential overlap and state how it will ensure any project funds (i.e., recipient cost share and federal funds) will not be used for identical cost items under multiple awards. Likewise, for projects that receive funding under this FOA, if a recipient or project team member receives any other award of federal funds for activities that potentially overlap with the activities funded under the DOE

award, the recipient must promptly notify DOE in writing of the potential overlap and state whether project funds from any of those other federal awards have been, are being, or are to be used (in whole or in part) for one or more of the identical cost items under the DOE award. If there are identical cost items, the recipient must promptly notify the Contracting Officer in writing of the potential duplication and eliminate any inappropriate duplication of funding.

Save the Potentially Duplicative Funding Notice in a single PDF file using the following convention for the title "ControlNumber_LeadOrganization_PDFN."

xix. Potential Tribal Impact Considerations (If applicable)

Applicants must ascertain potential impacts to Indian Tribes[19], including Alaska Native village or regional or village corporations, other than the applicant. For any application that potentially impacts Indian Tribes, including when the potentially impacted Indian Tribe is the applicant, this section specifies the documentation required at the time of application. For any project that potentially impacts Indian Tribes, applicants are required to submit documentation demonstrating that an authorized representative[20] of each potentially impacted Indian Tribe is, at a minimum, aware of the nature of the application and its potential impacts to the relevant Indian Tribes. The notified authorized representative must be holding their position while the award is open for applications, and documentation must demonstrate affirmative awareness of the application (e.g. a delivery record from certified mail, a reply by the authorized representative). For any project intended to be sited on Tribal land(s)[21] [or intersecting with Tribal subsurface rights], applicants are required to submit documentation demonstrating support from the relevant Indian Tribes at the time of application. Documentation of support submitted at the time of application will be considered to also demonstrate awareness of an Indian Tribe (specified above). Documentation may include either:

- A letter of support from Tribal leadership. The letter must be signed by an authorized representative2 of the Indian Tribe. The signer(s) must be holding their position while the award is open for applications or negotiations.
- A Tribal Council Resolution, Board resolution (including the Board of Directors of an Alaska Native Corporation (ANC)), or similar act passed by

[19]Indian Tribe is as defined in 25 U.S.C. § 5304 (e).

[20] An authorized representative must be an elected official or designated leader according to the traditions, constitution, or charter of the Indian Tribe, or someone with relevant delegated authority within the Tribal government. Examples include: Chief, Chairman, Chairwoman, Governor, Nation Representative, President, Chief Executive Officer, Chief Financial Officer, Speaker of the Council, Speaker of the Congress, Tribal administrator.

[21] Tribal lands is as defined in 25 U.S.C. §§ 3501(2), (3), (4)(A) and (13).

the legislative body of the Tribal government or Board of Directors of an ANC, expressing support for the project.

For projects not intended to be sited on Tribal land(s) [or intersecting with Tribal subsurface rights], but that may have other potential impacts on Tribal resources or reserved rights, letters of support or resolutions of support are strongly encouraged and, depending on the nature of the impact, may be required if selected for negotiation of an agreement. Applicants are encouraged to reach out to Indian Tribes as early as possible in the application process to give Indian Tribes ample time to evaluate and respond.

The following resources may be useful to help determine if a project may impact an Indian Tribe(s) resources or reserved rights and the appropriate contacts. These resources are not exhaustive, and many Indian Tribes have resources or reserved rights which extend beyond their Tribal reservation or land, or are covered within treaties, statutes, or case-law. Applicants are encouraged to do additional research:

- Map of Indian Lands: https://bia-geospatial internal.geoplatform.gov/indianlands/
- Tribal Treaties Database: https://treaties.okstate.edu/
- Directory of federally recognized Tribes and Tribal leaders: https://www.bia.gov/service/tribal-leaders-directory
- Best Practices for Identifying and Protecting Tribal Treaty Rights, Reserved Rights, and other similar rights in federal regulatory actions: https://www.bia.gov/sites/default/files/dup/inline-files/best_practices_guide.pdf

To help determine if an Indian Tribe's resources or reserved rights may be impacted by the project, applicants must address the following elements. If the applicant is an Indian Tribe, these elements should be addressed to ascertain impacts to Indian Tribes other than the applicant. Applicants do not need to reveal specific details about sacred sites such as specific location or specific ceremonies:

- Identify any wind resources which will be modeled on or near Tribal land, traditional homelands, Tribal historic sites, sacred sites, or in areas where an Indian Tribe maintains rights. Identify which Indian Tribe(s) may be impacted. Explain any instances of uncertainty or confidentiality.
- Identify any Tribal resources or reserved rights (e.g., water, fishing, or other treaty rights) which could be impacted by the proposed project. Identify any Tribal historic sites, sacred sites, or Tribally relevant vistas, which could be impacted by the project. Identify the

potentially impacted Indian Tribe(s) and explain any sources of uncertainty or confidentiality.

- Explain any actions taken by the applicant to mitigate or address any potential impacts identified above, including engaging with the potentially impacted Indian Tribe(s), in the application.

Applicants are required to document any efforts taken to identify any potential impacts to Indian Tribes, Indian lands, Alaska Native regional and village land, traditional homelands, Tribal rights, or Tribal historic sites, or sacred sites. This includes any correspondence with Indian Tribes. These documents should be available on request to DOE. An applicant's failure to submit documentation of an Indian Tribe's awareness, or a letter of support, when required as described above, may constitute grounds for determining an application ineligible, non-responsive to the FOA/OT solicitation, not subject to further review and/or not otherwise subject to selection or award.

Any application that may potentially impact Indian Tribe(s) may be shared with the potentially impacted Indian Tribe(s). Applicants should include a Notice of Restriction on Disclosure and Use of Data identifying any business sensitive, trade secrets, proprietary, or otherwise confidential information. Such information shall be used or disclosed only for evaluation of the application or to determine whether the proposed project affects an Indian Tribe(s).

If an applicant determines an Indian Tribe(s) will be impacted, the applicant must provide information on the project location, potential impacts and how the applicant will engage with Indian Tribe(s), during the period of performance of the agreement, and, if necessary, after the end of the agreement. Approval by DOE must be obtained before any activities take place that could impact Tribal resources or reserved rights, including but not limited to lands, cultural sites, sacred sites, water rights, mineral rights, fishing rights, and hunting rights. DOE will determine if formal government-to-government consultation is needed, and DOE will conduct that consultation accordingly, in addition to any engagement by applicant.

Save the Potential Tribal Impact Considerations in a single PDF file using the following convention for the title "ControlNumber_LeadOrganization_PTIC."

E. Post Selection Information Requests

If selected for award negotiations, DOE reserves the right to require that selected applicants provide additional or clarifying information regarding the application submissions, the project, the project team, the award requirements, and any other

matters related to anticipated award. The following is a list of examples of information that may be required:

- Personnel proposed to work on the project and collaborating organizations (See Section VI.B.xix. Participants and Collaborating Organizations);
- Current and Pending Support (See Sections IV.D.xvi. and VI.B.xx. Current and Pending Support);
- A Data Management Plan (if applicable) describing how all research data displayed in publications resulting from the proposed work will be digitally accessible at the time of publications, in accordance with Section VI.B.xxiii.;
- Indirect cost information;
- Other budget information;
- Letters of Commitment from third parties contributing to cost share, if applicable;
- Name and phone number of the Designated Responsible Employee for complying with national policies prohibiting discrimination (See 10 CFR 1040.5);
- Information for the DOE Office of Civil Rights to process assurance reviews under 10 CFR 1040;
- Representation of Limited Rights Data and Restricted Software, if applicable; and
- Environmental Questionnaire.

F. Unique Entity Identifier (UEI) and System for Award Management (SAM)

Each applicant (unless the applicant is an individual or federal awarding agency that is excepted from those requirements under 2 CFR 25.110(b) or (c), or has an exception approved by the federal awarding agency under 2 CFR 25.110(d)) is required to: (1) register in the SAM at https://www.sam.gov before submitting an application; (2) provide a valid UEI in the application; and (3) maintain an active SAM registration with current information at all times during which it has an active federal award or an application or plan under consideration by a federal awarding agency. DOE may not make a federal award to an applicant until the applicant has complied with all applicable UEI and SAM requirements. If an applicant has not fully complied with the requirements by the time DOE is ready to make a federal award, DOE will determine that the applicant is not qualified to receive a federal award and use that determination as a basis for making a federal award to another applicant.

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 use 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.

G. Submission Dates and Times

All required submissions must be submitted in EERE eXCHANGE no later than 5 p.m. ET on the dates provided on the cover page of this FOA.

H. Intergovernmental Review

This FOA is not subject to Executive Order 12372 – Intergovernmental Review of Federal Programs.

I. Funding Restrictions

i. Allowable Costs

All expenditures must be allowable, allocable, and reasonable in accordance with the applicable federal cost principles. Pursuant to 2 CFR 910.352, the cost principles in the Federal Acquisition Regulations (48 CFR 31.2) apply to for-profit entities. The cost principles contained in 2 CFR Part 200, Subpart E apply to all entities other than for-profits.

ii. Pre-Award Costs

Applicants selected for award negotiations (selectees) must request prior written approval to charge pre-award costs. Pre-award costs are those incurred prior to the effective date of the federal award directly pursuant to the negotiation and in anticipation of the federal award where such costs are necessary for efficient and timely performance of the scope of work. Such costs are allowable only to the extent that they would have been allowable if incurred after the date of the federal award and **only** with the written approval of the federal awarding agency, through the Contracting Officer.

Pre-award costs cannot be incurred prior to the Selection Official signing the Selection Statement and Analysis.

Pre-award expenditures are made at the selectee's risk. EERE is not obligated to reimburse costs: (1) in the absence of appropriations; (2) if an award is not made; or (3) if an award is made for a lesser amount than the selectee anticipated.

1. **National Environmental Policy Act (NEPA) Requirements Related to Pre-Award Costs**
   EERE's decision whether and how to distribute federal funds under this FOA is subject to NEPA. Applicants should carefully consider and should seek legal counsel or other expert advice before taking any action related to the proposed project that would have an adverse effect on the environment or limit the choice of reasonable alternatives prior to EERE completing the NEPA review process.

   EERE does not guarantee or assume any obligation to reimburse pre-award costs incurred prior to receiving written authorization from the Contracting Officer. If the applicant elects to undertake activities that DOE determines may have an adverse effect on the environment or limit the choice of reasonable alternatives prior to receiving such written authorization from the Contracting Officer, the applicant is doing so at risk of not receiving federal funding for their project and such costs may not be recognized as allowable cost share. Nothing contained in the pre-award cost reimbursement regulations or any pre-award costs approval letter from the Contracting Officer overrides the requirement to obtain the written authorization from the Contracting Officer prior to taking any action that may have an adverse effect on the environment or limit the choice of reasonable alternatives. Likewise, if an application is selected for negotiation of award, and the prime recipient elects to undertake activities that are not authorized for federal funding by the Contracting Officer in advance of EERE completing a NEPA review, the prime recipient is doing so at risk of not receiving federal funding and such costs may not be recognized as allowable cost share.

iii. Performance of Work in the United States (Foreign Work Waiver)

1. **Requirement**
   All work performed under EERE awards must be performed in the United States. The prime recipient must flow down this requirement to its subrecipients.

2. **Failure to Comply**
   If the prime recipient fails to comply with the Performance of Work in the United States requirement, DOE may deny reimbursement for the work conducted outside the United States and such costs may not be recognized as allowable recipient cost share. The prime recipient is responsible should

any work under this award be performed outside the United States, absent a waiver, regardless of whether the work is performed by the prime recipient, subrecipients, contractors or other project partners.

3. **Waiver**
   To seek a foreign work waiver, the applicant must submit a written waiver request to DOE. Appendix B lists the information that must be included in a request for a foreign work waiver.

   Save the waiver request(s) in a single PDF file. The applicant does not have the right to appeal DOE's decision concerning a waiver request.

iv. Construction

Recipients are required to obtain written authorization from the Contracting Officer before incurring any major construction costs.

v. Foreign Travel

If international travel is proposed for your project, please note that your organization must comply with the International Air Transportation Fair Competitive Practices Act of 1974 (49 USC 40118), commonly referred to as the "Fly America Act," and implementing regulations at 41 CFR 301-10.131 through 301-10.143. The law and regulations require air transport of people or property to, from, between, or within a country other than the United States, the cost of which is supported under this award, to be performed by or under a cost-sharing arrangement with a United States flag carrier, if service is available. Foreign travel costs are allowable only with the written prior approval of the Contracting Officer assigned to the award.

vi. Equipment and Supplies

To the greatest extent practicable, all equipment and products purchased with funds made available under this FOA should be American-made. This requirement does not apply to used or leased equipment.

vii. Build America Buy America Requirements for Infrastructure Projects

Pursuant to the Build America Buy America Act, subtitle IX of BIL (Buy America or BABA), and in accordance with 2 CFR Part 184, no funds for federal financial assistance which is subject to BABA requirements may be used for a project unless:

- All iron and steel used in the infrastructure work are produced in the United States;
- All manufactured products used in the project are produced in the United States; and
- All construction materials used in the infrastructure work are manufactured in the United States.

Whether a given project must apply this requirement is project-specific and dependent on several factors, such as the recipient's entity type, whether the work involves "infrastructure," as defined in Section 70914 of the BIL, and whether the infrastructure in question is publicly owned or serves a public function.

Applicants are strongly encouraged to consult Appendix D of this FOA to determine whether their project may have to apply this requirement, both to make an early determination as to the need of a waiver, as well as to determine what impact, if any, this requirement may have on the proposed project's budget.

BABA requirements apply to DOE prime recipients that are "non-Federal entities." In accordance with OMB Memorandum M-24-02 and 2 CFR 200.1, the term "non-Federal entity" includes states, local governments, territories, Indian Tribes, Institutes of Higher Education or non-profit organizations. DOE does not apply BABA requirements to for-profit entities. A Program Policy Factor that the Selection Official may consider in determining which Full Applications to select for award negotiations by for-profit entities may be applied pursuant to Section V.C.i., Program Policy Factors. The relevant Program Policy Factor considers the degree to which the proposed project will employ procurement of U.S. iron, steel, manufactured products, and construction materials.

Subawards should conform to the terms of the prime award from which they flow; in other words, for-profit prime recipients are not required to flow down these Buy America requirements to subrecipients, even if those subrecipients are non-Federal entities as defined above. Conversely, prime recipients which are non-Federal entities must flow the Buy America requirements down to all subrecipients, even if those subrecipients are for-profit entities.

The DOE financial assistance agreement will require each recipient to: (1) fulfill the commitments made in its application regarding the procurement of U.S.-produced products and (2) fulfill the commitments made in its application regarding the procurement of other key component metals and domestically manufactured products that are deemed available in sufficient and reasonably available quantities or of a satisfactory quality at the time of award negotiation.

Applicants may seek waivers of these requirements in very limited circumstances and for good cause shown. Further details on requesting a waiver can be found in Appendix D and the terms and conditions of an award.

Applicants are strongly encouraged to consult Appendix D and 2 CFR Part 184 for more information.

viii. Lobbying

Recipients and subrecipients may not use any federal funds to influence or attempt to influence, directly or indirectly, congressional action on any legislative or appropriation matters.

Recipients and subrecipients are required to complete and submit SF-LLL, "Disclosure of Lobbying Activities" (https://www.grants.gov/web/grants/forms/sf-424-individual-family.html) to ensure that non-federal funds have not been paid and will not be paid to any person for influencing or attempting to influence any of the following in connection with the application:

- An officer or employee of any federal agency;
- A Member of Congress;
- An officer or employee of Congress; or
- An employee of a Member of Congress.

ix. Risk Assessment

Pursuant to 2 CFR 200.206, DOE will conduct an additional review of the risk posed by applications submitted under this FOA. Such risk assessment will consider:

1. Financial stability;
2. Quality of management systems and ability to meet the management standards prescribed in 2 CFR 200 as amended and adopted by 2 CFR 910;
3. History of performance;
4. Audit reports and findings; and
5. The applicant's ability to effectively implement statutory, regulatory, or other requirements imposed on non-federal entities.

DOE may make use of other publicly available information and the history of an applicant's performance under DOE or other federal agency awards.

Depending on the severity of the findings and whether the findings were resolved, DOE may elect not to fund the applicant.

In addition to this review, DOE must comply with the guidelines on government-wide suspension and debarment in 2 CFR 180 and must require non-federal entities to comply with these provisions. These provisions restrict federal awards, subawards and contracts with certain parties that are debarred, suspended, or otherwise excluded from or ineligible for participation in federal programs or activities.

Further, as DOE invests in critical infrastructure and funds critical and emerging technology areas, DOE also considers possible vectors of undue foreign influence in evaluating risk. If high risks are identified and cannot be sufficiently mitigated, DOE may elect to not fund the applicant. As part of the research, technology, and economic security risk review, DOE may contact the applicant and/or proposed project team members for additional information to inform the review.

x. Invoice Review and Approval

DOE employs a risk-based approach to determine the level of supporting documentation required for approving invoice payments. Recipients may be required to provide some or all the following items with their requests for reimbursement:

- Summary of costs by cost categories;
- Timesheets or personnel hours report;
- Invoices/receipts for all travel, equipment, supplies, contractual, and other costs;
- UCC filing proof for equipment acquired with project funds by for-profit recipients and subrecipients;
- Explanation of cost share for invoicing period;
- Analogous information for some subrecipients; and
- Other items as required by DOE.

xi. Prohibition Related to Foreign Government-Sponsored Talent Recruitment Programs

a. Prohibition

Persons participating in a *Foreign Government-Sponsored Talent Recruitment Program of a Foreign Country of Risk* are prohibited from participating in projects selected for federal funding under this FOA. Should an award result from this FOA, the recipient must exercise ongoing due diligence to reasonably ensure that no individuals participating on the DOE-funded project are participating in a *Foreign Government-Sponsored Talent*

Recruitment Program of a Foreign Country of Risk. Consequences for violations of this prohibition will be determined according to applicable law, regulations, and policy. Further, the recipient must notify DOE within five (5) business days upon learning that an individual on the project team is or is believed to be participating in a foreign government talent recruitment program of a foreign country of risk. DOE may modify and add requirements related to this prohibition to the extent required by law.

b. Definitions

1. **Foreign Government-Sponsored Talent Recruitment Program.** An effort directly or indirectly organized, managed, or funded by a foreign government, or a foreign government instrumentality or entity, to recruit science and technology professionals or students (regardless of citizenship or national origin, or whether having a full-time or part-time position). Some foreign government-sponsored talent recruitment programs operate with the intent to import or otherwise acquire from abroad, sometimes through illicit means, proprietary technology or software, unpublished data and methods, and intellectual property to further the military modernization goals and/or economic goals of a foreign government. Many, but not all, programs aim to incentivize the targeted individual to relocate physically to the foreign state for the above purpose. Some programs allow for or encourage continued employment at United States research facilities or receipt of federal research funds while concurrently working at and/or receiving compensation from a foreign institution, and some direct participants not to disclose their participation to U.S. entities. Compensation could take many forms including cash, research funding, complimentary foreign travel, honorific titles, career advancement opportunities, promised future compensation, or other types of remuneration or consideration, including in-kind compensation.

2. **Foreign Country of Risk.** DOE has designated the following countries as foreign countries of risk: Iran, North Korea, Russia, and China. This list is subject to change.

xii. Affirmative Action and Pay Transparency Requirements

All applicants must comply with all applicable federal labor and employment laws, including but not limited to Title VII of the Civil Rights Act of 1964, the Fair Labor Standards Act, the Occupational Safety and Health Act, and the National Labor Relations Act, which protects employees' right to bargain collectively and engage in concerted activities for the purpose of workers' mutual aid or protection.

All federally assisted construction contracts exceeding $10,000 annually will be subject to the requirements of Executive Order 11246, Equal Employment Opportunity:

(1) Recipients, subrecipients, contractors, and subcontractors are prohibited from discriminating in employment decisions on the basis of race, color, religion, sex, sexual orientation, gender identity, or national origin.

(2) Recipients and contractors are required to take affirmative action to ensure that equal opportunity is provided in all aspects of their employment. This includes flowing down the appropriate language to all subrecipients, contractors, and subcontractors.

(3) Recipients, subrecipients, contractors, and subcontractors are prohibited from taking adverse employment actions against applicants and employees for asking about, discussing, or sharing information about their pay or, under certain circumstances, the pay of their co-workers.

DOL's Office of Federal Contractor Compliance Programs (OFCCP) uses a neutral process to schedule compliance evaluations. Consult OFCCP's Technical Assistance Guide[22] to gain an understanding of the requirements and possible actions the recipients, subrecipients, contractors, and subcontractors must take. Additional guidance may also be found in the National Policy Assurances, produced by DOE.

xiii. Foreign Collaboration Considerations

a. Consideration of new collaborations with foreign entities, organizations, and governments. The recipient will be required to provide DOE with advanced written notification of any potential collaboration with foreign entities, organizations, or governments in connection with its DOE-funded award scope. The recipient will then be required to await further guidance from DOE prior to contacting the proposed foreign entity, organization, or government regarding the potential collaboration or negotiating the terms of any potential agreement.

b. Existing collaborations with foreign entities, organizations, and governments. The recipient will be required to provide DOE with a written list of all existing

[22] See OFCCP's Technical Assistance Guide at: https://www.dol.gov/sites/dolgov/files/ofccp/Construction/files/ConstructionTAG.pdf?msclkid=9e397d68c4b111ec9d8e6fecb6c710ec Also see the National Policy Assurances http://www.nsf.gov/awards/managing/rtc.jsp

foreign collaborations in which has entered in connection with its DOE-funded award scope.

c. Description of collaborations that should be reported. In general, a collaboration will involve some provision of a thing of value to, or from, the recipient. A thing of value includes but may not be limited to all resources made available to, or from, the recipient in support of and/or related to the DOE award, regardless of whether or not they have monetary value. Things of value also may include in-kind contributions (such as office/laboratory space, data, equipment, supplies, employees, students). In-kind contributions not intended for direct use on the DOE award but resulting in provision of a thing of value from or to the DOE award must also be reported. Collaborations do not include routine workshops, conferences, use of the recipient's services and facilities by foreign investigators resulting from its standard published process for evaluating requests for access, or the routine use of foreign facilities by awardee staff in accordance with the recipient's standard policies and procedures.

V. Application Review Information

A. Technical Review Criteria

i. Concept Papers

Concept Papers are evaluated based on consideration the following factors. All sub-criteria are of equal weight.

Concept Paper Criterion: Overall FOA Responsiveness and Viability of the Project (Weight: 100%)

This criterion involves consideration of the following factors:

- The applicant clearly describes the proposed technology/effort, how the technology/effort is unique and innovative, and how the technology will advance the current state of the art or knowledge;
- The applicant has identified risks and challenges of the technology/effort, regulatory and financial aspects of the proposal including possible mitigation strategies, and has shown the impact that EERE funding and the proposed project would have on the relevant field and application;
- The applicant has the qualifications, experience, capabilities, and other resources necessary to complete the proposed project; and
- The proposed work, if successfully accomplished, would clearly meet the objectives as stated in the FOA.

ii. Full Applications

Applications will be evaluated against the technical review criteria shown below. All sub-criteria are of equal weight.

Topic Area 1: Floating Offshore Wind Platform Research and Development
(Includes Subtopic 1a: Refinement and Innovation in Floating Platform Design, Manufacturing, and Deployment and Subtopic 1b: Next-Generation Integrated Floating Turbine/Platform Technologies)
Topic Area 2: Innovation for Fixed-Bottom Offshore Wind Foundation Types and Supporting Infrastructure
Topic Area 3: Technology Advancement to Inform Risk to Birds and Bats from Offshore Wind Energy
Topic Area 6: Protecting Future Offshore Wind Farms Against Lightning

Criterion 1: Technical Merit, Innovation, and Impact (50%)
This criterion involves consideration of the following factors:

Technical Merit and Innovation

- Extent to which the proposed technology, process, or project is innovative or replicable;
- 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, with analyses that support the viability of the proposed work;
- Extent to which project has buy-in from needed stakeholders to ensure success;
- Degree to which key manufacturing and supply chain challenges are considered, as applicable, for viable scale-up in this and future demonstrations;
- Degree to which siting and environmental constraints are considered for deployment;
- Extent to which project has the potential to reduce emissions and provide clean energy acceleration benefits for a community or region; and
- Sufficiency of existing infrastructure to support addition of proposed demonstration.

Impact of Technology Advancement

- Ability of the project to advance industry adoption;
- Extent to which the project supports the topic area objectives and target specifications and metrics;
- Potential impact of the project on advancing the state of the art;
- Extent to which demonstration/deployment is replicable and may lead to future demonstrations; and
- Extent to which the project facilitates stakeholder relationships across new or existing stakeholders to gain technical buy-in and increase potential for future deployments.

Project Management

- Adequacy of proposed project management systems including the ability to track scope, cost, and schedule progress and changes;
- Reasonableness of budget and spend plan as detailed in the budget justification workbook for proposed project and objectives;
- Adequacy of contingency funding based on quality of cost estimate and identified risks;
- Adequacy, reasonableness, and soundness of the project schedule, as well as periodic Go/No-Go decisions prior to further funds disbursement, interim milestones, and metrics to track process;
- Adequacy, reasonableness, and soundness of the project schedule, as well as annual Go/No-Go decisions prior to a budget period continuation application, interim milestones, and metrics to track process;
- Adequacy of the identification of risks, including labor and community opposition or disputes, and "timely" and appropriate strategies for mitigation and resolution; and
- Soundness of a plan to expeditiously address environmental, siting, and other regulatory requirements for the project, including evaluation of resilience to climate change.

Criterion 2: Project Research and Market Transformation Plan (25%)
This criterion involves consideration of the following factors:

Research Approach, Workplan, and SOPO

- Degree to which the approach and critical path have been clearly described and thoughtfully considered; and
- Degree to which the task descriptions are clear, detailed, timely, and reasonable, resulting in a high likelihood that the proposed Workplan and SOPO will succeed in meeting the project goals.

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.

Baseline, Metrics, and Deliverables

- Level of clarity in the definition of the baseline, metrics, and milestones; and
- Relative to a clearly defined project baseline, the strength of the quantifiable metrics, milestones, and 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 market transformation 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, Open-source Software Distribution Plan, etc., and product distribution.

Industry Adoption Plan

- Identification of the interest and extent of industry adoption of the technology/process.

Criterion 3: Team and Resources (15%)

This criterion involves consideration of the following factors:

- Capability of the Principal Investigator(s) and the proposed team to address all aspects of the proposed work with a high probability of success. The qualifications, relevant expertise, and time commitment of the individuals on the team;
- Diversity of expertise and perspectives of the team and the inclusion of industry partners that will amplify impact;
- Sufficiency of the facilities to support the work;
- Degree to which the proposed consortia/team demonstrates the ability to facilitate and expedite further demonstration, 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 the budget and spend plan for the proposed project and objectives.

Criterion 4: Diversity, Equity, and Inclusion (10%)
This criterion involves consideration of the following factors:

- The quality and manner in which the measures incorporate diversity, equity and inclusion goals in the project; and
- Extent to which the project benefits underserved communities.

Topic Area 4: Development of a Manufacturing and Supply Chain Offshore Wind Consortium Based in the Great Lakes Region

Criterion 1: Cluster Administration Merit and Impact (40%)

Cluster Administration Merit

- Extent to which the application specifically and convincingly demonstrates how the applicant's approach will ensure that the cluster will result in a pathway to growing the offshore wind supply chain in the Great Lakes region of the United States.
- Assessment of whether the proposed approach is effective, based on sufficient detail in the application, including relevant statistics and discussion of prior experience that supports the viability of the proposed plan and overall approach.
- The extent to which the applicant identifies the initial cluster membership through letters of commitment and allow for a clear pathway for new members to join that were not part of the application.

Impact

- The level of impact that the proposed approach will have on growing the supply chain to help foster the market interest for offshore wind in the United States.

Criterion 2: Project Plan Approach, Work Plan, and Schedule (30%)
This criterion involves consideration of the following factors:

- Degree to which the approach and Work Breakdown Structure have been clearly described and thoughtfully considered;
- Degree to which the tasks, goals, milestones and deliverables to establish the cluster are clearly described, detailed, reasonable, timely, and can be completed within the allotted time span, resulting in a high likelihood that the implementation of the proposed Work Plan will result in the successful development and implementation of the cluster;

Operations

- The adequacy and quality of an annual planning process, including the strategic planning;
- Quality of the stakeholder engagement plan and how it demonstrates openness to new participants and ability to engage stakeholders along the supply chain including end-users;
- Adequacy of the discussion of the economic and operational key risk areas involved in the operations and management plan, and the quality of the mitigation strategies to address them, specifically with respect to Intellectual Property management, strengthening U.S. manufacturing competitiveness, and engaging offshore wind developers and the offshore wind supply chain

Project Management

- Adequacy of proposed project management systems including the ability to track scope, cost, and schedule progress and changes;
- Reasonableness of budget and spend plan as detailed in the budget justification workbook for proposed project and objectives;
- Adequacy of contingency funding based on quality of cost estimate and identified risks;
- Adequacy, reasonableness, and soundness of the project schedule, as well as periodic Go/No-Go decisions prior to further funds disbursement, interim milestones, and metrics to track process;
- Adequacy, reasonableness, and soundness of the project schedule, as well as annual Go/No-Go decisions prior to a budget period continuation application, interim milestones, and metrics to track process;
- Adequacy of the identification of risks, including labor and community opposition or disputes, and "timely" and appropriate strategies for mitigation and resolution; and
- Soundness of a plan to expeditiously address environmental, siting, and other regulatory requirements for the project, including evaluation of resilience to climate change.

Data Management Plan

- Degree to which the Data Management Plan addresses a plan for an agreement with cluster partners regarding data rights and intellectual property consistent with the objectives of this Funding Opportunity Announcement.

Outreach and Publicity Plan

- Degree to which the plan is sufficient in order to attract cluster partners and members.

Criterion 3: Team and Resources (15%)
This criterion involves consideration of the following factors:

Cluster Team and Participants

- The capability of the proposed cluster organizing entity to lead the organization and the proposed team to address all aspects of the proposed cluster with a strong chance of success;
- Qualifications, relevant expertise, and experience of the proposed cluster organizing entity team and key team members.
- Level of project time commitment by the proposed cluster administration team. Quality of the cluster participants, key technical personnel, and their level of technical capabilities and relevance to achieving the goals and objectives of the cluster and the FOA;
- Quality of the cluster participants and their level of commitment to support U.S. manufacturing competitiveness as defined in the U.S. Manufacturing Plan;
- Expertise and capabilities of the applicant to conduct and coordinate cluster efforts to accomplish the project objectives.

Management and Governance Approach

- Effectiveness of the proposed management organization and governance structure to enable strategic and technical decision-making;
- Degree to which past experience is described showing the ability of the cluster organizing entity to operate as an independent, neutral, non-biased coordinating and convening body for a diverse set of stakeholders;
- The adequacy and quality of the proposed participation structure (i.e. tiered membership structure, pay-for-use arrangements, etc.) including the benefits and restrictions for each level of participation (such as IP rights) to incentivize broad private sector participation.
- The degree to which the approach describes allocation of intellectual property rights among cluster members that is consistent with applicable laws, regulations, and policies.

Criterion 4: Diversity, Equity, and Inclusion (15%)

This criterion involves consideration of the following factors**:**

- The quality and manner in which the measures incorporate diversity, equity and inclusion goals in the project; and
- Extent to which the project benefits underserved communities.

Energy Equity

- Clear workplan tasks, staffing, research, and timeline for engaging energy equity stakeholders and/or evaluating the possible near and long-term implications of the Cluster for the benefit of the American public, including, but not limited to public health and public prosperity benefits;
- Approach, methodology, and expertise articulated in the plan for addressing energy equity and justice issues associated with the technology innovation; and
- Likelihood that the plan will result in improved understanding of distributional public benefits and costs related to the innovation if successful.

Workforce Implications

- Clear and comprehensive workplan tasks, staffing, research, and timeline for engaging workforce stakeholders and/or evaluating the possible near- and long-term implications of the Cluster for the U.S. workforce;
- Approach to document the knowledge, skills, and abilities of the workforce required for successful commercial deployment of innovations resulting from this research; and
- Likelihood that the plan will result in improved understanding of the workforce implications related to the innovation if successful.

Topic Area 5: Floating Offshore Wind Center of Excellence

Criterion 1: Center Merit, Innovation, and Impact (45%)
This criterion involves consideration of the following factors:

Center of Excellence Merit and Innovation

- Extent to which the proposed Center's research and educational programming are innovative;
- Degree to which the existing limitations and challenges in offshore wind energy development and deployment are described and the ways in which the proposed Center can mitigate or solve these challenges are articulated;
- Extent to which project has buy-in from needed stakeholders to ensure success of the Center; and
- Sufficiency of detail in the application to assess whether the proposed Center is meritorious, with specific attention paid to the integration of cross-sector partnerships in research, educational and other programming design.

Impact of Center of Excellence

- Extent to which the Center supports the topic area objectives and target specifications and metrics; and
- The potential impact of the Center on advancing the university-led offshore wind research portfolio and training the next generation of offshore wind leaders.

Center Management

- Adequacy of proposed project management systems including the ability to track scope, cost, and schedule progress and changes;
- Reasonableness of budget and spend plan as detailed in the budget justification workbook for proposed Center objectives;
- Soundness of a plan to expeditiously address environmental, siting, and other regulatory requirements for the project, including evaluation of resilience to climate change.

Criterion 2: Research Scope and Implementation Plan (20%)
This criterion involves consideration of the following factors:

Approach, Workplan, and SOPO

- Propose innovative research scope that aligns with DOE offshore wind strategy and is non-duplicative of the DOE's Wind Energy Technologies Office's portfolio and related funded efforts of other organizations;
- Degree to which the approach and critical path have been clearly described and thoughtfully considered; and
- Degree to which the task descriptions are clear, detailed, timely, and reasonable, resulting in a high likelihood that the proposed Workplan and SOPO will succeed in meeting the project goals.

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.

Baseline, Metrics, and Deliverables

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

Criterion 3: Team and Resources (20%)
This criterion involves consideration of the following factors:

- Capability of the proposed team to address all aspects of the proposed work with a high probability of success. The qualifications, relevant expertise, and time commitment of the individuals on the team;
- Diversity of expertise and perspectives of the team and the inclusion of industry partners that will amplify impact;
- Sufficiency of the facilities to support the work;
- Degree to which the proposed industry and community partners demonstrate the ability to facilitate and expedite relevant research and student training to support the development and commercial deployment of offshore wind in the U.S.
- The level of participation by Center participants as evidenced by letter(s) of commitment and how well they are integrated into the Workplan; and
- Reasonableness of the budget and spend plan for the proposed project and objectives

Criterion 4: Diversity, Equity, and Inclusion (15%)
This criterion involves consideration of the following factors:

- The quality and manner in which the measures incorporate diversity, equity and inclusion goals in the project; and
- Extent to which the project benefits underserved communities.

Energy Equity

- Clear workplan tasks, staffing, research, and timeline for engaging energy equity stakeholders and/or evaluating the possible near and long-term implications of the Center for the benefit of the American public, including, but not limited to public health and public prosperity benefits;
- Approach, methodology, and expertise articulated in the plan for addressing energy equity and justice issues associated with the technology innovation; and
- Likelihood that the plan will result in improved understanding of distributional public benefits and costs related to the innovation if successful.

Workforce Implications

- Clear and comprehensive workplan tasks, staffing, research, and timeline for engaging workforce stakeholders and/or evaluating the possible near- and long-term implications of the Center for the U.S. workforce;
- Approach to document the knowledge, skills, and abilities of the workforce required for successful commercial deployment of innovations resulting from this research; and
- Likelihood that the plan will result in improved understanding of the workforce implications related to the innovation if successful.

B. Standards for Application Evaluation

Applications that are determined to be eligible will be evaluated in accordance with this FOA, by the standards set forth in EERE's Notice of Objective Merit Review Procedure (76 Fed. Reg. 17846, March 31, 2011) and the guidance provided in the "DOE Merit Review Guide for Financial Assistance," effective October 1, 2020, which is available at: https://energy.gov/management/downloads/merit-review-guide-financial-assistance-and-unsolicited-proposals-current.

C. Other Selection Factors

i. Program Policy Factors

In addition to the above criteria, the Selection Official may consider the following program policy factors in determining which Full Applications to select for award negotiations:

- The degree to which the proposed project exhibits technological diversity when compared to the existing DOE project portfolio and other projects selected from the subject FOA;
- The degree to which the proposed project, including proposed cost share, optimizes the use of available EERE funding to achieve programmatic objectives;
- The level of industry involvement and demonstrated ability to accelerate commercialization and overcome key market barriers;
- The degree to which 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;
- The degree to which the proposed project, or group of projects, represent a desired geographic distribution (considering past awards and current applications);
- The degree to which the proposed project incorporates applicant or team members from Minority Serving Institutions (e.g., Historically Black Colleges and Universities (HBCUs)/Other Minority Institutions (OMIs)); and partnerships with Minority Business Enterprises, minority-owned businesses, woman-owned businesses, veteran-owned businesses, or Indian Tribes; and
- The degree to which the proposed project will employ procurement of U.S. iron, steel, manufactured products, and construction materials.
- The degree to which the proposed project contributes to the diversity of organizations and organization types and sizes selected from the subject FOA when compared to the existing DOE project portfolio.

- The degree to which the proposed project supports complementary efforts or projects, which, when taken together, will best achieve the research goals and objectives.
- The degree to which the proposed project enables new and expanding market segments; and
- The degree to which the project's solution or strategy will maximize deployment or replication.

D. Evaluation and Selection Process

i. Overview

The evaluation process consists of multiple phases; each includes an initial eligibility review and a thorough technical review. Rigorous technical reviews of eligible submissions 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 and risk reviews, in determining which applications to select.

ii. Pre-Selection Clarification

EERE may determine that pre-selection clarifications are necessary from one or more applicants. Pre-selection clarifications are distinct from and less formal than pre-selection interviews. These pre-selection clarifications will solely be for the purposes of clarifying the application. The pre-selection clarifications may occur before, during or after the merit review evaluation process. Information provided by an applicant that is not necessary to address the pre-selection clarification question will not be reviewed or considered. Typically, a pre-selection clarification will be carried out through either written responses to EERE's written clarification questions or video or conference calls with EERE representatives.

The information provided by applicants to EERE through pre-selection clarifications is incorporated in their applications and contributes to the merit review evaluation and EERE's selection decisions. If EERE contacts an applicant for pre-selection clarification purposes, it does not signify that the applicant has been selected for negotiation of award or that the applicant is among the top ranked applications.

EERE will not reimburse applicants for expenses relating to the pre-selection clarifications, nor will these costs be eligible for reimbursement as pre-award costs.

iii. Recipient Responsibility and Qualifications

DOE, prior to making a federal award with a total amount of federal share greater than the simplified acquisition threshold, is required to review and consider any responsibility and qualification information about the applicant that is in the entity information domain in SAM.gov (see 41 U.S.C. 2313).

The applicant, at its option, may review information in the entity information domain in SAM.gov and comment on any information about itself that a federal awarding agency previously entered and is currently in the entity information domain in SAM.gov.

DOE will consider any written comments by the applicant, in addition to the other information in the entity information domain in SAM.gov, in making a judgment about the applicant's integrity, business ethics, and record of performance under federal awards when completing the review of risk posed by applicants as described in 2 CFR 200.206.

iv. Selection

The Selection Official may consider the technical merit, the Federal Consensus Board's recommendations, program policy factors, risk reviews, and the amount of funds available in arriving at selections for this FOA.

E. Anticipated Notice of Selection and Award Negotiation Dates

EERE anticipates notifying applicants selected for negotiation of award and negotiating awards by the dates provided on the cover page of this FOA.

VI. Award Administration Information

A. Award Notices

i. Ineligible Submissions

Ineligible Concept Papers and Full Applications will not be further reviewed or considered for award. The Contracting Officer will send a notification letter by email to the technical and administrative points of contact designated by the applicant in EERE eXCHANGE. The notification letter will state the basis upon which the Concept Paper or the Full Application is ineligible and not considered for further review.

ii. Concept Paper Notifications

EERE will notify applicants of its determination to encourage or discourage the submission of a Full Application. EERE will post these notifications to EERE

eXCHANGE. EERE may include general comments provided from reviewers on an applicant's Concept Paper in the encourage/discourage notifications.

Applicants may submit a Full Application even if they receive a notification discouraging them from doing so. By discouraging the submission of a Full Application, EERE intends to convey its lack of programmatic interest in the proposed project. Such assessments do not necessarily reflect judgments on the merits of the proposed project. The purpose of the Concept Paper phase is to save applicants the considerable time and expense of preparing a Full Application that is unlikely to be selected for award negotiations.

A notification encouraging the submission of a Full Application does not authorize the applicant to commence performance of the project.

iii. Full Application Notifications

EERE will notify applicants of its determination via a notification letter by email to the technical and administrative points of contact designated by the applicant in EERE eXCHANGE. The notification letter will inform the applicant whether or not its Full Application was selected for award negotiations. Alternatively, EERE may notify one or more applicants that a final selection determination on particular Full Applications will be made at a later date, subject to the availability of funds or other factors.

iv. Applicants Selected for Award Negotiations

Successful applicants will receive written notification that they have been selected for award negotiations. Receipt of a notification letter selecting a Full Application for award negotiations does not authorize the applicant to commence performance of the project. If an application is selected for award negotiations, it is not a commitment by EERE to issue an award nor is it a guarantee of federal government funding. Applicants do not receive an award unless and until award negotiations are complete and the Contracting Officer executes the funding agreement, accessible by the prime recipient in FedConnect.

The award negotiation process will take approximately 60 days. Applicants must designate a primary and a backup point-of-contact in EERE eXCHANGE with whom EERE will communicate to conduct award negotiations. The applicant must be responsive during award negotiations (i.e., provide requested documentation) and meet the negotiation deadlines. If the applicant fails to do so or if award negotiations are otherwise unsuccessful, EERE will cancel the award negotiations and rescind the Selection. EERE reserves the right to terminate award negotiations at any time for any reason.

Please refer to Section IV.I.ii. of the FOA for guidance on pre-award costs.

v. Alternate Selection Determinations

In some instances, an applicant may receive a notification that its application was not selected for award and EERE designated the application to be an alternate. As an alternate, EERE may consider the Full Application for federal funding in the future. A notification letter stating the Full Application is designated as an alternate does not authorize the applicant to commence performance of the project. EERE may ultimately determine to select or not select the Full Application for award negotiations.

vi. Unsuccessful Applicants

EERE shall promptly notify in writing each applicant whose application has not been selected for award or whose application cannot be funded because of the unavailability of appropriated funds.

B. Administrative and National Policy Requirements

i. Registration Requirements

There are several one-time actions applicants must take before applying to this FOA. Some of these may take several weeks, so it is vital applicants build in enough time to complete them. Failure to complete these actions could interfere with application or negotiation deadlines or the ability to receive an award if selected. These requirements are as follows:

1. **EERE Funding Opportunity Exchange (eXCHANGE)**
   Register and create an account on 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.

   To access EERE eXCHANGE, potential applicants must have a Login.gov account. As part of the eXCHANGE registration process, new users will be directed to create an account in 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.

   Each organization or business unit, whether acting as a team or a single entity, should use only one account as the contact point for each submission. Applicants must also designate backup points of contact. **This step is required to apply to this FOA.** The eXCHANGE registration does not have a

delay; however, **the remaining registration requirements below could take several weeks to process and are necessary for a potential applicant to receive an award under this FOA.**

2. **System for Award Management**
   Register with the SAM at https://www.sam.gov. Designating an Electronic Business Point of Contact (EBiz POC) and obtaining a special password called a Marketing Partner ID Number (MPIN) are important steps in SAM registration. Please update your SAM registration annually.

3. **FedConnect**
   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.

4. **Grants.gov**
   Register in Grants.gov (http://www.grants.gov) to receive automatic updates when Amendments to this FOA are posted. Please note that Concept Papers, and Full Applications will not be accepted through Grants.gov.

Electronic Authorization of Applications and Award Documents
Submission of an application and supplemental information under this FOA through electronic systems used by the DOE, including EERE eXCHANGE and FedConnect.net, constitutes the authorized representative's approval and electronic signature.

ii. Award Administrative Requirements

The administrative requirements for DOE grants and cooperative agreements are contained in 2 CFR Part 200 as amended by 2 CFR Part 910.

iii. Foreign National Participation

All applicants selected for award negotiations and recipients of an award under this FOA and project participants (including subrecipients and contractors) who anticipate involving foreign nationals in the performance of an award, may be required to provide DOE with specific information about each foreign national to satisfy requirements for foreign national participation. A "foreign national" is defined as any person without U.S. citizenship or nationality (may include a stateless person). The volume and type of information collected may depend on various factors associated with the award. DOE concurrence may be required

before a foreign national can participate in the performance of any work under an award.

DOE may elect to deny a foreign national's participation in the award. Likewise, DOE may elect to deny a foreign national's access to a DOE site, information, technologies, equipment, programs, or personnel.

iv. Subaward and Executive Reporting

Additional administrative requirements necessary for DOE grants and cooperative agreements to comply with the Federal Funding and Transparency Act of 2006 (FFATA) are contained in 2 CFR Part 170. Prime recipients must register with the new FFATA Subaward Reporting System database and report the required data on their first tier subrecipients. Prime recipients must report the executive compensation for their own executives as part of their registration profile in SAM.

v. National Policy Requirements

The National Policy Assurances that are incorporated as a term and condition of award are located at: http://www.nsf.gov/awards/managing/rtc.jsp.

vi. Environmental Review in Accordance with National Environmental Policy Act (NEPA)

EERE's decision whether and how to distribute federal funds under this FOA is subject to NEPA (42 U.S.C. 4321, *et seq.*). NEPA requires federal agencies to integrate environmental values into their decision-making processes by considering the potential environmental impacts of their proposed actions. For additional background on NEPA, please see DOE's NEPA website, at https://www.energy.gov/nepa.

While NEPA compliance is a federal agency responsibility and the ultimate decisions remain with the federal agency, all applicants selected for award negotiations and recipients of an award will be required to assist in the timely and effective completion of the NEPA process in the manner most pertinent to their proposed project. If DOE determines certain documents must be prepared to complete the NEPA review process, the recipient may be required to prepare the documents and the costs to prepare the necessary records may be included as part of the project costs. DOE will independently evaluate the environmental document and will take responsibility for the contents, including ensuring the professional integrity of the discussion and analysis, as required by NEPA.

National Historic Preservation Act (NHPA)

DOE must comply with the requirements of Section 106 of the National Historic

Preservation Act (NHPA) prior to deciding whether or how to distribute Federal funds. Section 106 requires DOE to identify and consider adverse effects to historic properties that are listed in or eligible for listing in the National Register of Historic Places. DOE will perform a NHPA review under the umbrella of its NEPA review and will require applicants to assist in this review and consider impacts to historic, Tribal, and cultural resources.

vii. Flood Resilience

Executive Order 11988, Floodplain Management, requires agencies engage in a decision-making process to evaluate the potential effects of any action it may take in a floodplain and to avoid development in a floodplain to the extent possible. DOE procedures for implementing the Executive Order are in 10 CFR part 1022. Executive Order 13690, Establishing a Federal Flood Risk Management Standard and a Process for Further Soliciting and Considering Stakeholder Input reinstated by Executive Order 14030, Climate-Related Financial Risk, directs federal agencies to "expand management from the current base flood level to a higher vertical elevation and corresponding horizontal floodplain to address current and future flood risk and ensure that projects funded with taxpayer dollars last as long as intended." The higher flood elevation is based on one of three approaches: climate-informed science (preferred), freeboard value, or 0.2% annual flood change (500-year floodplain). Selectees will be required to indicate whether the proposed project location(s) is within a floodplain, how the floodplain was defined, and how the project's design has been modified to reduce the risk of flood loss and minimize the impact of floods on human safety, health, and welfare. Information to assist in the implementation of these requirements is available at:

- https://www.energy.gov/nepa/articles/eo-13690-establishing-federal-flood-risk-management-standard-and-process-further
- https://www.fema.gov/floodplain-management/intergovernmental/white-house-flood-resilience-interagency-working-group
- http://floodstandard.climate.gov

viii. Applicant Representations and Certifications

1. Lobbying Restrictions

By accepting funds under this award, the prime recipient agrees that none of the funds obligated on the award shall be expended, directly or indirectly, to influence Congressional action on any legislation or appropriation matters pending before Congress, other than to communicate to Members of Congress as described in 18 U.S.C. § 1913. This restriction is in addition to those prescribed elsewhere in statute and regulation.

2. **Corporate Felony Conviction and Federal Tax Liability Representations**
In submitting an application to this FOA, the applicant represents that:

   a. It is **not** a corporation that has been convicted of a felony criminal violation under any federal law within the preceding 24 months; and

   b. It is **not** a corporation that has any unpaid federal tax liability that has been assessed, for which all judicial and administrative remedies have been exhausted or have lapsed, and that is not being paid in a timely manner pursuant to an agreement with the authority responsible for collecting the tax liability.

   For purposes of these representations, a corporation is any for-profit or nonprofit entity that has filed articles of incorporation in any of the 50 states, the District of Columbia, or the various territories of the United States [but not foreign corporations].

3. **Nondisclosure and Confidentiality Agreements Representations**
In submitting an application to this FOA the applicant represents that:

   a. It **does not and will not** require its employees or contractors to sign internal nondisclosure or confidentiality agreements or statements prohibiting or otherwise restricting its employees or contactors from lawfully reporting waste, fraud, or abuse to a designated investigative or law enforcement representative of a federal department or agency authorized to receive such information.

   b. It **does not and will not** use any federal funds to implement or enforce any nondisclosure and/or confidentiality policy, form, or agreement it uses unless it contains the following provisions:

      (1) *''These provisions are consistent with and do not supersede, conflict with, or otherwise alter the employee obligations, rights, or liabilities created by existing statute or Executive order relating to (1) classified information, (2) communications to Congress, (3) the reporting to an Inspector General of a violation of any law, rule, or regulation, or mismanagement, a gross waste of funds, an abuse of authority, or a substantial and specific danger to public health or safety, or (4) any other whistleblower protection. The definitions, requirements, obligations, rights, sanctions, and liabilities created by controlling Executive orders and statutory provisions are incorporated into this agreement and are controlling.''*

(2) The limitation above shall not contravene requirements applicable to Standard Form 312 Classified Information Nondisclosure Agreement (https://fas.org/sgp/othergov/intel/sf4414.pdf), Form 4414 Sensitive Compartmented Information Disclosure Agreement (https://fas.org/sgp/othergov/intel/sf4414.pdf), or any other form issued by a federal department or agency governing the nondisclosure of classified information.

(3) Notwithstanding the provision listed in paragraph (a), a nondisclosure or confidentiality policy form or agreement that is to be executed by a person connected with the conduct of an intelligence or intelligence-related activity, other than an employee or officer of the United States government, may contain provisions appropriate to the particular activity for which such document is to be used. Such form or agreement shall, at a minimum, require that the person will not disclose any classified information received in the course of such activity unless specifically authorized to do so by the United States government. Such nondisclosure or confidentiality forms shall also make it clear that they do not bar disclosures to Congress, or to an authorized official of an executive agency or the Department of Justice, that are essential to reporting a substantial violation of law.

ix. Statement of Federal Stewardship

EERE will exercise normal federal stewardship in overseeing the project activities performed under EERE awards. Stewardship Activities include, but are not limited to, conducting site visits; reviewing performance and financial reports; providing assistance and/or temporary intervention in unusual circumstances to correct deficiencies that develop during the project; assuring compliance with terms and conditions; and reviewing technical performance after project completion to ensure that the project objectives have been accomplished.

x. Statement of Substantial Involvement

EERE has substantial involvement in work performed under awards made as a result of 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. Substantial involvement includes, but is not limited to, the following:

1. EERE shares responsibility with the recipient for the management, control, direction, and performance of the project.

2. 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.

3. 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).

4. EERE participates in major project decision-making processes.

xi. Subject Invention Utilization Reporting

To ensure that prime recipients, subrecipients, and contractors holding title to subject inventions are taking the appropriate steps to commercialize subject inventions, EERE may require that each prime recipient holding title to a subject invention submit annual reports for ten (10) years from the date the subject invention was disclosed to EERE on the utilization of the subject invention and efforts made by prime recipient or their licensees or assignees to stimulate such utilization. The reports must include information regarding the status of development, date of first commercial sale or use, gross royalties received by the prime recipient, and such other data and information as EERE may specify.

xii. Intellectual Property Provisions

The standard DOE financial assistance intellectual property provisions applicable to the various types of recipients are located at http://energy.gov/gc/standard-intellectual-property-ip-provisions-financial-assistance-awards.

xiii. Reporting

Reporting requirements are identified on the Federal Assistance Reporting Checklist, attached to the award agreement.

xiv. Go/No-Go Review

Each project selected under this FOA will be subject to a periodic project evaluation referred to as a Go/No-Go Review. A Go/No-Go Review is a risk management tool and a project management best practice to ensure that, for the current phase or period of performance, technical success is definitively achieved and potential for success in future phases or periods of performance is evaluated, prior to beginning the execution of future phases. At the Go/No-Go decision points, EERE will evaluate project performance, project schedule adherence, meeting milestone objectives, compliance with reporting requirements, and overall contribution to the program goals and objectives. Federal funding beyond the Go/No-Go decision point (continuation funding) is contingent upon (1) availability of federal funds appropriated by Congress for the purpose of this program; (2) the availability of future-year budget authority; (3)

recipient's technical progress compared to the Milestone Summary Table stated in Attachment 1 of the award; (4) recipient's submittal of required reports; (5) recipient's compliance with the terms and conditions of the award; (6) EERE's Go/No-Go decision; (7) the recipient's submission of a continuation application;[23] and (8) written approval of the continuation application by the Contracting Officer.

As a result of the Go/No-Go Review, DOE may, at its discretion, authorize the following actions: (1) continue to fund the project, contingent upon the availability of funds appropriated by Congress for the purpose of this program and the availability of future-year budget authority; (2) recommend redirection of work under the project; (3) place a hold on federal funding for the project, pending further supporting data or funding; or (4) discontinue funding the project because of insufficient progress, change in strategic direction, or lack of funding.

The Go/No-Go decision is distinct from a non-compliance determination. In the event a recipient fails to comply with the requirements of an award, EERE may take appropriate action, including but not limited to, redirecting, suspending, or terminating the award.

xv. Conference Spending

The recipient shall not expend any funds on a conference not directly and programmatically related to the purpose for which the grant or cooperative agreement was awarded that would defray the cost to the United States government of a conference held by any Executive branch department, agency, board, commission, or office for which the cost to the U.S. government would otherwise exceed $20,000, thereby circumventing the required notification by the head of any such Executive Branch department, agency, board, commission, or office to the Inspector General (or senior ethics official for any entity without an Inspector General), of the date, location, and number of employees attending such conference.

[23] A continuation application is a non-competitive application for an additional budget period within a previously approved project period. At least ninety (90) days before the end of each budget period, the recipient must submit its continuation application, which includes the following information:

i. A progress report on the project objectives, including significant findings, conclusions, or developments, and an estimate of any unobligated balances remaining at the end of the budget period. If the remaining unobligated balance is estimated to exceed 20 percent of the funds available for the budget period, explain why the excess funds have not been obligated and how they will be used in the next budget period.
ii. A detailed budget and supporting justification if there are changes to the negotiated budget, or a budget for the upcoming budget period was not approved at the time of award.
iii. A description of any planned changes from the SOPO and/or Milestone Summary Table.

xvi. Uniform Commercial Code (UCC) Financing Statements

Per 2 CFR 910.360 (Real Property and Equipment) when a piece of equipment is purchased by a for-profit recipient or subrecipient with federal funds, and when the federal share of the financial assistance agreement is more than $1 million the recipient or subrecipient must:

Properly record, and consent to the Department's ability to properly record if the recipient fails to do so, UCC financing statement(s) for all equipment in excess of $5,000 purchased with project funds. These financing statement(s) must be approved in writing by the Contracting Officer prior to the recording, and they shall provide notice that the recipient's title to all equipment (not real property) purchased with federal funds under the financial assistance agreement is conditional pursuant to the terms of this section, and that the government retains an undivided reversionary interest in the equipment. The UCC financing statement(s) must be filed before the Contracting Officer may reimburse the recipient for the federal share of the equipment unless otherwise provided for in the relevant financial assistance agreement. The recipient shall further make any amendments to the financing statements or additional recordings, including appropriate continuation statements, as necessary or as the Contracting Officer may direct.

xvii. Real Property and Equipment

Real property and equipment purchased with project funds (federal share and recipient cost share) are subject to the requirements at 2 CFR 200.310, 200.311, 200.313, and 200.316 (non-federal entities, except for-profit entities) and 2 CFR 910.360 (for-profit entities).

For projects selected for awards under this FOA, the recipients may (1) take disposition action on the real property and equipment; or (2) continue to use the real property and equipment after the conclusion of the award period of performance with Contracting Officer approval. The recipient's written request for Continued Use must identify the property and include: a summary of how the property will be used (must align with the authorized project purposes); a proposed use period, (e.g., perpetuity, until fully depreciated, or a calendar date when the recipient expects to submit disposition instructions); acknowledgement that the recipient shall not sell or encumber the property or permit any encumbrance without prior written DOE approval; current fair market value of the property; and an estimated useful life or depreciation schedule for equipment.

When the property is no longer needed for authorized project purposes, the recipient must request disposition instructions from DOE. For-profit entity disposition requirements are set forth in 2 CFR 910.360. Property disposition

requirements for other non-federal entities are set forth in 2 CFR 200.310 – 200.316. In addition, pursuant to the FY23 Consolidated Appropriations Act (Pub. L. No. 117-328), Division D, Title III, Section 309, at the end of the award period the Secretary or a designee of the Secretary, at their discretion, may vest unconditional title or other property interests acquired under this project regardless of the fair market value of the property.

xviii. Implementation of Executive Order 13798, Promoting Free Speech and Religious Liberty

States, local governments, and other public entities may not condition subawards in a manner that would discriminate against or otherwise disadvantage subrecipients based on their religious character.

xix. Participants and Collaborating Organizations

If selected for award negotiations, the selected applicant must submit a list of personnel who are proposed to work on the project, both at the recipient and subrecipient level and a list of proposed collaborating organizations prior to award. Recipients will have an ongoing responsibility to notify DOE of changes to the personnel and collaborating organizations and submit updated information during the life of the award.

xx. Current and Pending Support

If selected for award negotiations, within 30 days of the selection notice, the selectee must submit 1) current and pending support disclosures and resumes for any new PIs or Senior/Key Personnel and 2) updated disclosures if there have been any changes to the current and pending support submitted with the application. Throughout the life of the award, the Recipient has an ongoing responsibility to submit 1) current and pending support disclosure statements and resumes for any new PI and Senior/Key Personnel and 2) updated disclosures if there are changes to the current and pending support previously submitted to DOE. Also see Section IV.D.xvi.

xxi. U.S. Manufacturing Commitments

A primary objective of DOE's multi-billion-dollar research, development and demonstration investments is to cultivate new research and development ecosystems, manufacturing capabilities, and supply chains for and by United States industry and labor. Therefore, in exchange for receiving taxpayer dollars to support an applicant's project, the applicant/recipient and any subrecipient and contractor must agree to a U.S. Competitiveness provision requiring that any products embodying any subject invention or produced through the use of any subject invention will be manufactured substantially in the United States unless the applicant/recipient can show to the satisfaction of DOE that it is not

commercially feasible. Award terms, including the specific U.S. Competitiveness Provision applicable to the various types of recipients and projects, are available at: https://www.energy.gov/gc/standard-intellectual-property-ip-provisions-financial-assistance-awards.

Please note that a subject invention is any invention conceived or first actually reduced to practice in performance of work under an award. An invention is any invention or discovery which is or may be patentable. The recipient includes any awardee, recipient, sub-awardee, or sub-recipient.

As noted in the U.S. Competitiveness Provision, if an entity cannot meet the requirements of the U.S. Competitiveness Provision, the entity may request a modification or waiver of the U.S. Competitiveness Provision. For example, the entity may propose modifying the language of the U.S. Competitiveness Provision in order to change the scope of the requirements or to provide more specifics on the application of the requirements for a particular technology. As another example, the entity may request that the U.S. Competitiveness Provision be waived in lieu of a net benefits statement or United States manufacturing plan. The statement or plan would contain specific and enforceable commitments that would be beneficial to the United States economy and competitiveness. Examples of such commitments could include manufacturing specific products in the United States, making a specific investment in a new or existing United States manufacturing facility, keeping certain activities based in the United States or supporting a certain number of jobs in the United States related to the technology. DOE may, in its sole discretion, determine that the proposed modification or waiver promotes commercialization and provides substantial United States economic benefits, and grant the request. If granted, DOE will modify the award terms and conditions for the requesting entity accordingly.

More information and guidance on the waiver and modification request process can be found in the DOE Financial Assistance Letter on this topic, available at https://www.energy.gov/management/pf-2022-09-fal-2022-01-implementation-doe-determination-exceptional-circumstances-under. Additional information on DOE's Commitment to Domestic Manufacturing for DOE-funded R&D is available at https://www.energy.gov/gc/us-manufacturing.

The U.S. Competitiveness Provision is implemented by DOE pursuant to a Determination of Exceptional Circumstances (DEC) under the Bayh-Dole Act and DOE Patent Waivers. See Section VIII.J. Title to Subject Inventions of this FOA for more information on the DEC and DOE Patent Waivers.

xxii. Interim Conflict of Interest Policy for Financial Assistance

The DOE interim Conflict of Interest Policy for Financial Assistance (COI Policy)[24] is applicable to all non-Federal entities applying for, or that receive, DOE funding by means of a financial assistance award (e.g., a grant, cooperative agreement, or technology investment agreement) and, through the implementation of this policy by the entity, to each Investigator who is planning to participate in, or is participating in, the project funded wholly or in part under the DOE financial assistance award. The term "Investigator" means the PI and any other person, regardless of title or position, who is responsible for the purpose, design, conduct, or reporting of a project funded by DOE or proposed for funding by DOE. Recipients must flow down the requirements of the interim COI Policy to any subrecipient non-federal entities. Further, for DOE funded projects, the recipient must include all financial conflicts of interest (FCOI) (i.e., managed and unmanaged/ unmanageable) in its initial and ongoing FCOI reports.

It is understood that non-federal entities and individuals receiving DOE financial assistance awards will need sufficient time to come into full compliance with DOE's interim COI Policy. To provide some flexibility, DOE allows for a staggered implementation. Specifically, prior to award, applicants selected for award negotiations must: ensure all Investigators complete their significant financial disclosures; review the disclosures; determine whether a FCOI exists; develop and implement a management plan for FCOIs; and provide DOE with an initial FCOI report that includes all FCOIs (i.e., managed and unmanaged/ unmanageable). Recipients will have 180 days from the date of the award to come into full compliance with the other requirements set forth in DOE's interim COI Policy. Prior to award, the applicant must certify that it is, or will be within 180 days of the award, compliant with all requirements in the COI Policy.

xxiii. Data Management Plan

Each applicant selected for award negotiations will be required to submit a Data Management Plan (DMP) during the award negotiations phase. A DMP explains how, when appropriate, data generated in the course of the work performed under an EERE award will be shared and preserved to validate the results of the proposed work or how the results could be validated if the data is not shared or preserved. The DMP must provide a plan for making all research data displayed in publications resulting from the proposed work digitally accessible at the time of publications.

[24] DOE's interim COI Policy can be found at PF 2022-17 FAL 2022-02 Department of Energy Interim Conflict of Interest Policy Requirements for Financial Assistance.

xxiv. Fraud, Waste, and Abuse

The mission of the DOE Office of Inspector General (OIG) is to strengthen the integrity, economy, and efficiency of the Department's programs and operations including deterring and detecting fraud, waste, abuse, and mismanagement. The OIG accomplishes this mission primarily through investigations, audits, and inspections of DOE activities to include grants, cooperative agreements, loans, and contracts.

The OIG maintains a hotline for reporting allegations of fraud, waste, abuse, or mismanagement. To report such allegations, please visit https://www.energy.gov/ig/ig-hotline.

Additionally, recipients of DOE awards must be cognizant of the requirements of 2 CFR 200.113 Mandatory disclosures, which states:

> The non-Federal entity or applicant for a federal award must disclose, in a timely manner, in writing to the Federal awarding agency or pass-through entity all violations of Federal criminal law involving fraud, bribery, or gratuity violations potentially affecting the Federal award. Non-Federal entities that have received a federal award including the term and condition outlined in appendix XII of 2 CFR Part 200 are required to report certain civil, criminal, or administrative proceedings to SAM.gov. Failure to make required disclosures can result in any of the remedies described in 2 CFR 200.339. (See also 2 CFR part 180, 31 U.S.C. § 3321, and 41 U.S.C. § 2313.) [85 FR 49539, Aug. 13, 2020]

Applicants/recipients and subrecipients (if applicable) are encouraged to allocate sufficient costs in the project budget to cover the costs associated for personnel and data infrastructure needs to support performance management and program evaluation needs, including but not limited to independent program and project audits to mitigate risks for fraud, waste, and abuse.

xxv. Human Subjects Research

Research involving human subjects, biospecimens, or identifiable private information conducted with DOE funding is subject to the requirements of DOE Order 443.1C, Protection of Human Research Subjects, 45 CFR Part 46, Protection of Human Subjects (subpart A which is referred to as the "Common Rule"), and 10 CFR Part 745, Protection of Human Subjects. Additional information on the DOE Human Subjects Research Program can be found at: HUMAN SUBJECTS Human Subjects Pr... | U.S. DOE Office of Science (SC) (osti.gov).

VII. Questions/Agency Contacts

Upon the issuance of a FOA, EERE personnel are prohibited from communicating (in writing or otherwise) with applicants regarding the FOA except through the established question and answer process described below. Questions regarding this FOA must be submitted to WETO.OSW@ee.doe.gov no later than three (3) business days prior to the application due date and time. Please note, feedback on individual concepts will not be provided through Q&A.

All questions and answers related to this FOA will be posted on EERE eXCHANGE at: https://eere-exchange.energy.gov. **You must first select the FOA Number to view the questions and answers specific to this FOA**. EERE will attempt to respond to a question within three (3) business days unless a similar question and answer has already been posted on the website.

Questions related to the registration process and use of the EERE eXCHANGE website should be submitted to: EERE-eXCHANGESupport@hq.doe.gov.

VIII. Other Information

A. FOA Modifications

Amendments to this FOA will be posted on EERE eXCHANGE and the Grants.gov system. However, you will only receive an email when an amendment or a FOA is posted on these sites if you register for email notifications for this FOA in Grants.gov. EERE recommends that you register as soon after the release of the FOA as possible to ensure you receive timely notice of any amendments or other FOAs.

B. Government Right to Reject or Negotiate

EERE reserves the right, without qualification, to reject any or all applications received in response to this FOA and to select any application, in whole or in part, as a basis for negotiation and/or award.

C. Commitment of Public Funds

The Contracting Officer is the only individual who can make awards or commit the government to the expenditure of public funds. A commitment by anyone other than the Contracting Officer, either express or implied, is invalid.

D. Treatment of Application Information

Applicants should not include trade secrets or business-sensitive, proprietary, or otherwise confidential information in their application unless such information is

necessary to convey an understanding of the proposed project or to comply with a requirement in the FOA. Applicants are advised to not include any critically sensitive proprietary detail.

If an application includes trade secrets or business-sensitive, proprietary, or otherwise confidential information, it is furnished to the federal government in confidence with the understanding that the information shall be used or disclosed only for evaluation of the application. Such information will be withheld from public disclosure to the extent permitted by law, including the Freedom of Information Act. Without assuming any liability for inadvertent disclosure, EERE will seek to limit disclosure of such information to its employees and to outside reviewers when necessary for merit review of the application or as otherwise authorized by law. This restriction does not limit the federal government's right to use the information if it is obtained from another source.

If an applicant chooses to submit trade secrets or business-sensitive, proprietary, or otherwise confidential information, the applicant must provide **two copies** of the submission (e.g., Concept Paper, Full Application). The first copy should be marked "non-confidential," with the information believed to be confidential deleted. The second copy should be marked "confidential" and must clearly and conspicuously identify the trade secrets or business-sensitive, proprietary, or otherwise confidential information and must be 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 federal government is not liable for the disclosure or use of unmarked information and may use or disclose such information for any purpose as authorized by law.

The cover sheet of the Full Application, and other applicant submission must be marked as follows and identify the specific pages containing trade secrets or business-sensitive, proprietary, or otherwise confidential information:

> **Notice of Restriction on Disclosure and Use of Data:**
> Pages [list applicable pages] of this document may contain trade secrets or business-sensitive, proprietary, or otherwise confidential information that is exempt from public disclosure. Such information shall be used or disclosed only for evaluation purposes or in accordance with a financial assistance agreement between the submitter and the government. The government may use or disclose any information that is not appropriately marked or otherwise restricted, regardless of source. [End of Notice]

In addition, (1) the header and footer of every page that contains trade secrets or business-sensitive, proprietary, or otherwise confidential information must be marked as follows: "Contains Trade Secrets or Business-Sensitive, Proprietary, or

Otherwise Confidential Information Exempt from Public Disclosure," and (2) every line or paragraph containing such information must be clearly marked with double brackets or highlighting. DOE will make its own determination about the confidential status of the information and treat it according to its determination.

E. Evaluation and Administration by Non-Federal Personnel

In conducting the merit review evaluation, the Go/No-Go Reviews, and Peer Reviews, the government may seek the advice of qualified non-federal personnel as reviewers. The government may also use non-federal personnel to conduct routine, nondiscretionary administrative activities, including EERE contractors. The applicant, by submitting its application, consents to the use of non-federal reviewers/administrators. Non-federal reviewers must sign conflict of interest (COI) and non-disclosure acknowledgements (NDA) prior to reviewing an application. Non-federal personnel conducting administrative activities must sign an NDA.

F. Notice Regarding Eligible/Ineligible Activities

Eligible activities under this FOA include those which describe and promote the understanding of scientific and technical aspects of specific energy technologies, but not those which encourage or support political activities such as the collection and dissemination of information related to potential, planned, or pending legislation.

G. Notice of Right to Conduct a Review of Financial Capability

EERE reserves the right to conduct an independent third-party review of financial capability for applicants that are selected for negotiation of award (including personal credit information of principal(s) of a small business if there is insufficient information to determine financial capability of the organization).

H. Requirement for Full and Complete Disclosure

Applicants are required to make a full and complete disclosure of all information requested. Any failure to make a full and complete disclosure of the requested information may result in:

- The termination of award negotiations;
- The modification, suspension, and/or termination of a funding agreement;
- The initiation of debarment proceedings, debarment, and/or a declaration of ineligibility for receipt of federal contracts, subcontracts, and financial assistance and benefits; and
- Civil and/or criminal penalties.

I. Retention of Submissions

EERE expects to retain copies of all Full Applications and other submissions. No submissions will be returned. By applying to EERE for funding, applicants consent to EERE's retention of their submissions.

J. Title to Subject Inventions

Ownership of subject inventions is governed pursuant to the authorities listed below:

- Domestic Small Businesses, Educational Institutions, and Nonprofits: Under the Bayh-Dole Act (35 U.S.C. § 200 et seq.), domestic small businesses, educational institutions, and nonprofits may elect to retain title to their subject inventions;
- All other parties: The federal Non-Nuclear Energy Act of 1974, 42. U.S.C. § 5908, provides that the government obtains title to new inventions unless a waiver is granted (see below);
- Class Patent Waiver: DOE has issued a class waiver that applies to this FOA. Under this class waiver, domestic large businesses may elect title to their subject inventions similar to the right provided to the domestic small businesses, educational institutions, and nonprofits by law. To avail itself of the class waiver, a domestic large business must agree that any products embodying or produced through the use of a subject invention first created or reduced to practice under this program will be substantially manufactured in the United States.
- Advance and Identified Waivers: Applicants not covered by a Class Patent Waiver or the Bayh-Dole Act may request a patent waiver that will cover subject inventions that may be invented under the award, in advance of or within 30 days after the effective date of the award. Even if an advance waiver is not requested or the request is denied, the recipient will have a continuing right under the award to request a waiver for identified inventions, i.e., individual subject inventions that are disclosed to EERE within the timeframes set forth in the award's intellectual property terms and conditions. Any patent waiver that may be granted is subject to certain terms and conditions in 10 CFR 784.
- DEC: On June 07, 2021, DOE approved a Determination of Exceptional Circumstances (DEC) under the Bayh-Dole Act to further promote domestic manufacture of DOE science and energy technologies. In accordance with this DEC, all awards, including sub-awards, under this FOA shall include the U.S. Competitiveness Provision in accordance with Section VI.B.xxi. U.S. Manufacturing Commitments of this FOA. A copy of the DEC can be found at https://www.energy.gov/gc/determination-exceptional-circumstances-decs. Pursuant to 37 CFR § 401.4, any nonprofit organization or small business firm as defined by 35 U.S.C. 201 affected by any DEC has the right to appeal it by providing written notice to DOE within 30 working days from the time it receives a copy of the determination.

- DOE may issue and publish further DECs on the website above prior to the issuance of awards under this FOA. DOE may require additional submissions or requirements as authorized by any applicable DEC.

K. Government Rights in Subject Inventions

Where prime recipients, subrecipients, and contractors retain title to subject inventions, the U.S. government retains certain rights.

i. Government Use License

The U.S. government retains a nonexclusive, nontransferable, irrevocable, paid-up license to practice or have practiced for or on behalf of the United States any subject invention throughout the world. This license extends to government contractors.

ii. March-In Rights

The U.S. government retains march-in rights with respect to all subject inventions. Through "march-in rights," the government may require a prime recipient or subrecipient who has elected to retain title to a subject invention (or their assignees or exclusive licensees), to grant a license for use of the invention to a third party. In addition, the government may grant licenses for use of the subject invention when a prime recipient, subrecipient, or their assignees and exclusive licensees refuse to do so.

DOE may exercise its march-in rights only if it determines that such action is necessary under any of the four following conditions:

- The owner or licensee has not taken or is not expected to take effective steps to achieve practical application of the invention within a reasonable time;
- The owner or licensee has not taken action to alleviate health or safety needs in a reasonably satisfied manner;
- The owner has not met public use requirements specified by federal statutes in a reasonably satisfied manner; or
- The United States manufacturing requirement has not been met.

Any determination that march-in rights are warranted must follow a fact-finding process in which the recipient has certain rights to present evidence and witnesses, confront witnesses and appear with counsel and appeal any adverse decision. To date, DOE has never exercised its march-in rights to any subject inventions.

L. Rights in Technical Data

Data rights differ based on whether data is first produced under an award or instead was developed at private expense outside the award.

"Limited Rights Data": The U.S. government will not normally require delivery of confidential or trade secret-type technical data developed solely at private expense prior to issuance of an award, except as necessary to monitor technical progress and evaluate the potential of proposed technologies to reach specific technical and cost metrics.

Government Rights in Technical Data Produced Under Awards: The U.S. government normally retains unlimited rights in technical data produced under government financial assistance awards, including the right to distribute to the public. However, pursuant to special statutory authority, certain categories of data generated under EERE awards under this FOA may be protected from public disclosure for up to five years after the data is generated ("Protected Data"). For awards permitting Protected Data, the protected data must be marked as set forth in the award's intellectual property terms and conditions and a listing of unlimited rights data (i.e., non-protected data) must be inserted into the data clause in the award. In addition, invention disclosures may be protected from public disclosure for a reasonable time to allow for filing a patent application.

M. Copyright

The prime recipient and subrecipients may assert copyright in copyrightable works, such as software, first produced under the award without EERE approval. When copyright is asserted, the government retains a paid-up nonexclusive, irrevocable worldwide license to reproduce, prepare derivative works, distribute copies to the public, and to perform publicly and display publicly the copyrighted work. This license extends to contractors and others doing work on behalf of the government.

N. Export Control

The United States government regulates the transfer of information, commodities, technology, and software considered to be strategically important to the United States to protect national security, foreign policy, and economic interests without imposing undue regulatory burdens on legitimate international trade. There is a network of federal agencies and regulations that govern exports that are collectively referred to as "Export Controls." All recipients and subrecipients are responsible for ensuring compliance with all applicable United States Export Control laws and regulations relating to any work performed under a resulting award.

The recipient must immediately report to DOE any export control investigations, indictments, charges, convictions, and violations, at the recipient or subrecipient level, and provide the corrective action(s) to prevent future violations.

O. Prohibition on Certain Telecommunications and Video Surveillance Services or Equipment

As set forth in 2 CFR 200.216, recipients and subrecipients are prohibited from obligating or expending project funds (federal funds and recipient cost share) to procure or obtain; extend or renew a contract to procure or obtain; or enter into a contract (or extend or renew a contract) to procure or obtain equipment, services, or systems that use *covered telecommunications equipment or services* as a substantial or essential component of any system, or as critical technology as part of any system. As described in Section 889 of Public Law 115-232, *covered telecommunications equipment* is telecommunications equipment produced by Huawei Technologies Company or ZTE Corporation (or any subsidiary or affiliate of such entities).

See Public Law 115-232, Section 889, 2 CFR 200.216, and 2 CFR 200.471 for additional information.

P. Personally Identifiable Information (PII)

All information provided by the applicant must to the greatest extent possible exclude PII. The term "PII" refers to information which can be used to distinguish or trace an individual's identity, such as their name, social security number, biometric records, alone, or when combined with other personal or identifying information which is linked or linkable to a specific individual, such as date and place of birth, mother's maiden name. (See OMB Memorandum M-17-12 dated January 3, 2017)

By way of example, applicants must screen resumes to ensure that they do not contain PII such as personal addresses, personal landline/cell phone numbers, and personal emails. **Under no circumstances should Social Security Numbers (SSNs) be included in the application**. Federal agencies are prohibited from the collecting, using, and displaying unnecessary SSNs. (See, the Federal Information Security Modernization Act of 2014 (Pub. L. No. 113-283, Dec 18, 2014; 44 U.S.C. § 3551).

Q. Annual Independent Audits

If a for-profit entity is a prime recipient and has expended $750,000 or more of DOE awards during the entity's fiscal year, an annual compliance audit performed by an independent auditor is required. For additional information, please refer to 2 CFR 910.501 and Subpart F.

If an educational institution, non-profit organization, or state/local government is a prime recipient or subrecipient and has expended $750,000 or more of federal awards during the non-federal entity's fiscal year, a Single or Program-Specific Audit is required. For additional information, please refer to 2 CFR 200.501 and Subpart F.

Applicants and subrecipients (if applicable) should propose sufficient costs in the project budget to cover the costs associated with the audit. EERE will share in the cost of the audit at its applicable cost share ratio.

APPENDIX A – COST SHARE INFORMATION

Cost Sharing or Cost Matching

The terms "cost sharing" and "cost matching" are often used synonymously. Even the DOE Financial Assistance Regulations, 2 CFR 200.306, use both terms in the titles specific to regulations applicable to cost sharing. EERE almost always uses "cost sharing," as it conveys the concept that non-federal share is calculated as a percentage of the Total Project Cost. An exception is the State Energy Program Regulation, 10 CFR 420.12, State Matching Contribution. Here "cost matching" for the non-federal share is calculated as a percentage of the federal funds only, rather than the Total Project Cost.

How Cost Sharing Is Calculated

As stated above, cost sharing is calculated as a percentage of the Total Project Cost. FFRDC costs must be included in Total Project Costs. The following is an example of how to calculate cost sharing amounts for a project with $1,000,000 in federal funds with a minimum 20% non-federal cost sharing requirement:

- Formula: Federal share ($) divided by federal share (%) = Total Project Cost
  Example: $1,000,000 divided by 80% = $1,250,000

- Formula: Total Project Cost ($) minus federal share ($) = Non-federal share ($)
  Example: $1,250,000 minus $1,000,000 = $250,000

- Formula: Non-federal share ($) divided by Total Project Cost ($) = Non-federal share (%)
  Example: $250,000 divided by $1,250,000 = 20%

What Qualifies for Cost Sharing

While it is not possible to explain what specifically qualifies for cost sharing in one or two sentences, in general, if a cost is allowable under the cost principles applicable to the organization incurring the cost and is eligible for reimbursement under an EERE grant or cooperative agreement, it is allowable as cost share. Conversely, if the cost is not allowable under the cost principles and not eligible for reimbursement, it is not allowable as cost share. In addition, costs may not be counted as cost share if they are paid by the federal government under another award unless authorized by federal statute to be used for cost sharing.

The rules associated with what is allowable as cost share are specific to the type of organization that is receiving funds under the grant or cooperative agreement, though are generally the same for all types of entities. The specific rules applicable to:

- FAR Part 31 for For-Profit entities, (48 CFR Part 31); and
- 2 CFR Part 200 Subpart E - Cost Principles for all other non-federal entities.

In addition to the above regulations, other factors may also come into play such as timing of donations and length of the project period. For example, the value of 10 years of donated maintenance on a project that has a project period of five years would not be fully allowable as cost share. Only the value for the five years of donated maintenance that corresponds to the project period is allowable and may be counted as cost share.

Additionally, EERE generally does not allow pre-award costs for either cost share or reimbursement when these costs precede the signing of the appropriation bill that funds the award. In the case of a competitive award, EERE generally does not allow pre-award costs prior to the signing of the Selection Statement by the EERE Selection Official.

General Cost Sharing Rules on a DOE Award

1. **Cash Cost Share** encompasses all contributions to the project made by the recipient or subrecipient(s), for costs incurred and paid for during the project. This includes when an organization pays for personnel, supplies, equipment for their own company with organizational resources. If the cost of the item or service is reimbursed, it is cash cost share. All cost share items must be necessary to the performance of the project.

2. **In-Kind Cost Share** encompasses all contributions to the project made by the recipient or subrecipient(s) that do not involve a payment or reimbursement and represent donated items or services. In-Kind cost share items include volunteer personnel hours, donated existing equipment, and donated existing supplies. The cash value and calculations thereof for all In-Kind cost share items must be justified and explained in the Cost Share section of the project Budget Justification. All cost share items must be necessary to the performance of the project. Consult your DOE contact if you have questions before filling out the In-Kind cost share section of the Budget Justification.

3. **Funds from other federal sources** may **not** be counted as cost share. This prohibition includes FFRDC subrecipients. Non-federal sources include any source not originally derived from federal funds. Cost sharing commitment letters from subrecipients must be provided with the original application.

4. **Fee or profit**, including foregone fee or profit, are not allowable as project costs (including cost share) under any resulting award. The project may only incur those costs that are allowable and allocable to the project (including cost share) as determined in accordance with the applicable cost principles prescribed in FAR Part 31 for For-Profit entities and 2 CFR Part 200 Subpart E - Cost Principles for all other non-federal entities.

DOE Financial Assistance Rules 2 CFR Part 200 as amended by 2 CFR Part 910

As stated above, the rules associated with what is allowable cost share are generally the same for all types of organizations. Following are the rules found to be common, but again, the specifics are contained in the regulations and cost principles specific to the type of entity:

(A) Acceptable contributions. All contributions, including cash contributions and third-party in-kind contributions, must be accepted as part of the prime recipient's cost sharing if such contributions meet all of the following criteria:

(1) They are verifiable from the recipient's records.

(2) They are not included as contributions for any other federally assisted project or program.

(3) They are necessary and reasonable for the proper and efficient accomplishment of project or program objectives.

(4) They are allowable under the cost principles applicable to the type of entity incurring the cost as follows:

a. For-profit organizations. Allowability of costs incurred by for-profit organizations and those nonprofit organizations listed in Attachment C to OMB Circular A–122 is determined in accordance with the for-profit cost principles in 48 CFR Part 31 in the FAR, except that patent prosecution costs are not allowable unless specifically authorized in the award document. (v) Commercial Organizations. FAR Subpart 31.2—Contracts with Commercial Organizations; and

b. Other types of organizations. For all other non-federal entities, allowability of costs is determined in accordance with 2 CFR Part 200 Subpart E.

(5) They are not paid by the federal government under another award unless authorized by federal statute to be used for cost sharing or matching.

(6) They are provided for in the approved budget.

(B) Valuing and documenting contributions

(1) Valuing recipient's property or services of recipient's employees. Values are established in accordance with the applicable cost principles, which mean that amounts chargeable to the project are determined on the basis of costs incurred. For real property or equipment used on the project, the cost principles authorize depreciation or use charges. The full value of the item may be applied when the item will be consumed in the performance of the award or fully depreciated by the end of

the award. In cases where the full value of a donated capital asset is to be applied as cost sharing or matching, that full value must be the lesser or the following:

a. The certified value of the remaining life of the property recorded in the recipient's accounting records at the time of donation; or

b. The current fair market value. If there is sufficient justification, the Contracting Officer may approve the use of the current fair market value of the donated property, even if it exceeds the certified value at the time of donation to the project. The Contracting Officer may accept the use of any reasonable basis for determining the fair market value of the property.

(2) Valuing services of others' employees. If an employer other than the recipient furnishes the services of an employee, those services are valued at the employee's regular rate of pay, provided these services are for the same skill level for which the employee is normally paid.

(3) Valuing volunteer services. Volunteer services furnished by professional and technical personnel, consultants, and other skilled and unskilled labor may be counted as cost sharing or matching if the service is an integral and necessary part of an approved project or program. Rates for volunteer services must be consistent with those paid for similar work in the recipient's organization. In those markets in which the required skills are not found in the recipient organization, rates must be consistent with those paid for similar work in the labor market in which the recipient competes for the kind of services involved. In either case, paid fringe benefits that are reasonable, allowable, and allocable may be included in the valuation.

(4) Valuing property donated by third parties.

a. Donated supplies may include such items as office supplies or laboratory supplies. Value assessed to donated supplies included in the cost sharing or matching share must be reasonable and must not exceed the fair market value of the property at the time of the donation.

b. Normally only depreciation or use charges for equipment and buildings may be applied. However, the fair rental charges for land and the full value of equipment or other capital assets may be allowed, when they will be consumed in the performance of the award or fully depreciated by the end of the award, provided that the Contracting Officer has approved the charges. When use charges are applied, values must be determined in accordance with the usual accounting policies of the recipient, with the following qualifications:

i. The value of donated space must not exceed the fair rental value of comparable space as established by an independent appraisal of

comparable space and facilities in a privately-owned building in the same locality.

ii. The value of loaned equipment must not exceed its fair rental value.

(5) Documentation. The following requirements pertain to the recipient's supporting records for in-kind contributions from third parties:

a. Volunteer services must be documented and, to the extent feasible, supported by the same methods used by the recipient for its own employees.

b. The basis for determining the valuation for personal services and property must be documented.

APPENDIX B – WAIVER REQUESTS FOR: 1. FOREIGN ENTITY PARTICIPATION; AND 2. FOREIGN WORK

1. Waiver for Foreign Entity Participation

Many of the technology areas DOE funds fall in the category of critical and emerging technologies (CETs). CETs are a subset of advanced technologies that are potentially significant to United States national and economic security.[25] For projects selected under this FOA, all recipients and subrecipients must be organized, chartered, or incorporated (or otherwise formed) under the laws of a state or territory of the United States; have majority domestic ownership and control; and have a physical location for business operations in the United States. To request a waiver of this requirement, an applicant must submit an explicit waiver request in the Full Application.

Waiver Criteria

Foreign entities seeking to participate in a project funded under this FOA must demonstrate to the satisfaction of DOE that:

a. Its participation is in the best interest of the United States industry and United States economic development;
b. The project team has appropriate measures in place to control sensitive information and protect against unauthorized transfer of scientific and technical information;
c. Adequate protocols exist between the United States subsidiary and its foreign parent organization to comply with export control laws and any obligations to protect proprietary information from the foreign parent organization;
d. The work is conducted within the United States and the entity acknowledges and demonstrates that it has the intent and ability to comply with the United States Competitiveness Provision (see Section VI.B.xxi.); and
e. The foreign entity will satisfy other conditions that may be deemed necessary by DOE to protect United States government interests.

Content for Waiver Request

A Foreign Entity waiver request must include the following:

a. Information about the entity: name, point of contact, physical address, and proposed type of involvement in the project;
b. Country of incorporation, the extent of the ownership/level control by foreign entities, whether the entity is state owned or controlled, a summary of the ownership breakdown of the foreign entity, and the percentage of

[25] See Critical and Emerging Technologies List Update (whitehouse.gov).

ownership/control by foreign entities, foreign shareholders, foreign state or foreign individuals;

c. The rationale for proposing a foreign entity participate (must address criteria above);
d. A description of the project's anticipated contributions to the United States economy;
    - How the project will benefit the United States, including manufacturing, contributions to employment in the United States and growth in new markets and jobs in the United States;
    - How the project will promote manufacturing of products and/or services in the United States;
e. A description of how the foreign entity's participation is essential to the project;
f. A description of the likelihood of Intellectual Property (IP) being created from the work and the treatment of any such IP; and
g. Countries where the work will be performed (Note: if any work is proposed to be conducted outside the United States, the applicant must also complete a separate request foreign work waiver.)

DOE may also require:

- A risk assessment with respect to IP and data protection protocols that includes the export control risk based on the data protection protocols, the technology being developed, and the foreign entity and country. These submissions could be prepared by the project lead (if not the prime recipient), but the prime recipient must make a representation to DOE as to whether it believes the data protection protocols are adequate and make a representation of the risk assessment – high, medium, or low risk of data leakage to a foreign entity.
- Additional language be added to any agreement or subagreement to protect IP, mitigate risk, or other related purposes.

DOE may require additional information before considering the waiver request.

DOE's decision concerning a waiver request is not appealable.

2. Waiver for Performance of Work in the United States (Foreign Work Waiver Request)

As set forth in Section IV.I.iii., all work funded under this FOA must be performed in the United States. To seek a waiver of the Performance of Work in the United States requirement, the applicant must submit an explicit waiver request in the Full Application. A separate waiver request must be submitted for each entity proposing performance of work outside of the United States.

Overall, a waiver request must demonstrate to the satisfaction of DOE that it would further the purposes of this FOA and is otherwise in the economic interests of the United States to perform work outside of the United States. A request for a foreign work waiver must include the following:

1. The rationale for performing the work outside the United States ("foreign work");
2. A description of the work proposed to be performed outside the United States;
3. An explanation as to how the foreign work is essential to the project;
4. A description of the anticipated benefits to be realized by the proposed foreign work and the anticipated contributions to the U.S. economy;
5. The associated benefits to be realized and the contribution to the project from the foreign work;
6. How the foreign work will benefit the United States, including manufacturing, contributions to employment in the United States and growth in new markets and jobs in the United States;
7. How the foreign work will promote manufacturing of products and/or services in the United States;
8. A description of the likelihood of IP being created from the foreign work and the treatment of any such IP;
9. The total estimated cost (DOE and recipient cost share) of the proposed foreign work;
10. The countries in which the foreign work is proposed to be performed; and
11. The name of the entity that would perform the foreign work.

DOE may require additional information before considering the waiver request.

DOE's decision concerning a waiver request is not appealable.

APPENDIX C – REQUIRED USE OF AMERICAN IRON, STEEL, MANUFACTURED PRODUCTS, AND CONSTRUCTION MATERIALS BUY AMERICA REQUIREMENTS FOR INFRASTRUCTURE PROJECTS

A. Definitions

For purposes of the Buy America Requirement, the following definitions apply:

Components See 2 CFR 184.3 Definitions

Construction Materials See 2 CFR 184.3 Definitions

"Buy America Preference," "Buy America Requirement," or "domestic content procurement preference" means the requirements set forth in section 70914 of the Build America, Buy America Act, which requires the head of each Federal agency to ensure that none of the funds subject to the requirements are made available for a Federal award for an infrastructure project may be obligated unless all of the iron, steel, manufactured products, and construction materials incorporated into the project are produced in the United States.

Infrastructure See 2 CFR 184.4(c) and (d).

Manufactured Products See 2 CFR 184.3 Definitions

Predominantly of iron or steel See 2 CFR 184.3 Definitions.

Infrastructure project See 2 CFR 184.3 Definitions

B. Buy America Requirements for Infrastructure Projects ("Buy America" Requirements)

None of the award funds (includes federal share and recipient cost share) may be used for a project for infrastructure unless:

(1) all iron and steel used in the project are produced in the United States--this means all manufacturing processes, from the initial melting stage through the application of coatings, occurred in the United States;

(2) all manufactured products used in the project are produced in the United States—this means the manufactured product was manufactured in the United States; and the cost of the components of the manufactured product that are mined, produced, or manufactured in the United States is greater than 55 percent of the total cost of all components of the manufactured product, unless another standard for determining the minimum amount of domestic content of the manufactured product has been

established under applicable law or regulation. See 2 CFR 184.5 for determining the cost of components for manufactured products; and

(3) all construction materials[26] are manufactured in the United States—this means that all manufacturing processes for the construction material occurred in the United States. See 2 CFR 184.6 for construction material standards.

The Buy America requirements only applies to those articles, materials, and supplies that are consumed in, incorporated into, or affixed to the infrastructure in the project. As such, it does not apply to tools, equipment, and supplies, such as temporary scaffolding, brought to the construction site and removed at or before the completion of the infrastructure project. Nor does the Buy America Requirement apply to equipment and furnishings, such as movable chairs, desks, and portable computer equipment, that are used at or within the finished infrastructure project, but are not an integral part of the structure or permanently affixed to the infrastructure project.

The Buy America Requirement only applies to an article, material, or supply classified into one of the following categories* based on its status at the time it is brought to the work site for incorporation into an infrastructure project:

(i) Iron or steel products;
(ii) Manufactured products; or
(iii) Construction materials;

The Buy America Requirement only applies to the iron or steel products, manufactured products, and construction materials used for the construction, alteration, maintenance, or repair of public infrastructure in the United States when those items are consumed in, incorporated into, or permanently affixed to the infrastructure. An article, material, or supply incorporated into an infrastructure project should not be considered to fall into multiple categories, but rather must meet the Buy America Preference Requirement for only the single category in which it is classified.

The Buy America Requirement applies to public infrastructure projects in the United States. For purposes of this guidance, applicants should consider whether the infrastructure project will serve a public function. Infrastructure projects should generally be considered "public" if the infrastructure is: publicly owned, privately owned but operated on behalf of the public, or is a place of public accommodation. Review the implementation guidance in OMB Memorandum OMB Memorandum M-24-02 and consult with DOE if you are unsure if your project is subject to Buy America requirements.

[26] Excludes cement and cementitious materials, aggregates such as stone, sand, or gravel, or aggregate binding agents or additives.

All iron and steel, manufactured products, and construction materials used in the infrastructure project must be produced in the United States.

** Section 70917(c) Materials* are cement and cementitious materials; aggregates such as stone, sand, or gravel; or aggregate binding agents or additives as provided in section 70917(c) of BABA. Section 70917 (c) materials are excluded from Construction materials. Asphalt concrete pavement mixes are typically composed of asphalt cement (a binding agent) and aggregates such as stone, sand, and gravel. Accordingly, asphalt is also excluded from the definition of Construction materials.

Section 70917(c) materials, on their own, are not manufactured products. Further, Section 70917(c) materials should not be considered manufactured products when they are used at or combined proximate to the work site—such as is the case with wet concrete or hot mix asphalt brought to the work site for incorporation. However, certain Section 70917(c) materials (such as stone, sand, and gravel) may be used to produce a manufactured product, such as is precast concrete. Precast concrete is made of components, is processed into a specific shape or form, and is in such state when brought to the work site. Furthermore, wet concrete should not be considered a manufactured product if not dried or set prior to reaching the work site.

Further clarification is provided in 2 CFR Part 184 on the circumstances under which a determination is made that Section 70917(c) materials should be treated as components of a manufactured product. That determination is based on consideration of: (i) the revised definition of the "manufactured products" at 2 CFR 184.3; (ii) a new definition of "section 70917(c) materials" at 2 CFR 184.3; (iii) new instructions at 2 CFR 184.4(e) on how and when to categorize articles, materials, and supplies; and (iv) new instructions at 2 CFR 184.4(f) on how to apply the Buy America preference by category.

The recipient is responsible for flowing the Buy America Requirement down to all sub-awards, contracts, subcontracts, and purchase orders for work performed under the proposed infrastructure project, including to For-Profit Entities when the for-profit entity is a subrecipient or subawardee.

Recipients must certify or provide equivalent documentation for proof of compliance that a good faith effort was made to solicit bids for domestic products used in the infrastructure project under this award.

Recipients must also maintain certifications or equivalent documentation for proof of compliance that those articles, materials, and supplies that are consumed in, incorporated into, affixed to, or otherwise used in the infrastructure project, not covered by an approved waiver or an exemption provided in 2 CFR 184.8, are produced in the United States. The certification or proof of compliance must be provided by the suppliers or manufacturers of the iron, steel, manufactured products and construction materials and flow up from all subawardees, contractors and vendors to the recipient. Recipients must keep these certifications with the

award/project files and be able to produce them upon request from DOE, auditors or Office of Inspector General.

C. DOE Submission Requirements for Full Application

Within the first two pages of the workplan or project description, applicants must provide a short statement on whether the project will involve the construction, alteration, maintenance and/or repair of infrastructure in the United States. The ultimate determination about whether a project includes infrastructure remains with DOE, but the applicant's statement will assist project planning and integration of the Buy America Requirement, which may impact the project's proposed budget and/or schedule.

D. Waivers

In limited circumstances, DOE may waive the application of the Buy America Requirement where DOE determines that:

> (1) Applying the Buy America Requirement would be inconsistent with the public interest (Public Interest);
>
> (2) he types of iron, steel, manufactured products, or construction materials are not produced in the United States in sufficient and reasonably available quantities or of a satisfactory quality (Non-Availability); or
>
> (3) the inclusion of iron, steel, manufactured products, or construction materials produced in the United States will increase the cost of the overall project by more than 25% (Unreasonable Cost).

DOE will only process waiver requests after an award has been made but prior to any purchase of items the recipient is seeking to waive, and for which the requests have been submitted in accordance with the term and conditions of the award. Waiver requests must be reviewed by DOE and the Office of Management and Budget's Made in America Office and are subject to a public comment period of no less than 15 calendar days.

DOE or OMB may request additional information for consideration of the wavier. DOE may reject or grant waivers in whole or in part depending on its review, analysis, and/or feedback from OMB or the public. DOEs final determination regarding approval or rejection of the waiver request may not be appealed by a recipient.

Requests to waive the Buy America Requirement must include the following:

- Waiver type (Public Interest, Non-Availability, or Unreasonable Cost);
- Recipient name and Unique Entity Identifier (UEI);
- Award information (Federal Award Identification Number, Assistance Listing number);

- A brief description of the project, its location, and the specific infrastructure involved;
- Total estimated project cost, with estimated federal share and recipient cost share breakdowns;
- Total estimated infrastructure costs, with estimated federal share and recipient cost share breakdowns;
- List and description of iron or steel item(s), manufactured goods, and/or construction material(s) the recipient seeks to waive from the Buy America Requirement, including name, cost, quantity(ies), country(ies) of origin, and relevant Product Service Codes (PSC) and North American Industry Classification System (NAICS) codes for each;
- A detailed justification as to how the non-domestic item(s) is/are essential the project;
- A certification that the recipient made a good faith effort to solicit bids for domestic products supported by terms included in requests for proposals, contracts, and non-proprietary communications with potential suppliers;
- A justification statement—based on one of the applicable justifications outlined above—as to why the listed items cannot be procured domestically, including the due diligence performed (e.g., market research, industry outreach, cost analysis, cost-benefit analysis) by the recipient to attempt to avoid the need for a waiver. This justification may cite, if applicable, the absence of any Buy America-compliant bids received for domestic products in response to a solicitation;
- A description of the market research conducted that includes who conducted the market research, when it was conducted, sources that were used, and the methods used to conduct the research; and Anticipated impact to the project if no waiver is issued.

APPENDIX D – DEFINITION OF TECHNOLOGY READINESS LEVELS

TRL 1:	Basic principles observed and reported
TRL 2:	Technology concept and/or application formulated
TRL 3:	Analytical and experimental critical function and/or characteristic proof of concept
TRL 4:	Component and/or breadboard validation in a laboratory environment
TRL 5:	Component and/or breadboard validation in a relevant environment
TRL 6:	System/subsystem model or prototype demonstration in a relevant environment
TRL 7:	System prototype demonstration in an operational environment
TRL 8:	Actual system completed and qualified through test and demonstrated
TRL 9:	Actual system proven through successful mission operations

APPENDIX F – LIST OF ACRONYMS

COI	Conflict of Interest
CRADA	Cooperative Research and Development Agreement
DEC	Determination of Exceptional Circumstances
DEI	Diversity, Equity, and Inclusion
DMP	Data Management Plan
DOE	Department of Energy
DOI	Department of Interior
EERE	Energy Efficiency and Renewable Energy
FAR	Federal Acquisition Regulation
FCOI	Financial Conflicts of Interest
FFATA	Federal Funding and Transparency Act of 2006
FOA	Funding Opportunity Announcement
FOIA	Freedom of Information Act
FFRDC	Federally Funded Research and Development Center
GAAP	Generally Accepted Accounting Principles
IPMP	Intellectual Property Management Plan
IRB	Institutional Review Board
M&O	Management and Operating
MFA	Multi-Factor Authentication
MPIN	Marketing Partner ID Number
MSI	Minority-Serving institution
MYPP	Multi-Year Program Plan
NDA	Non-Disclosure Acknowledgement
NEPA	National Environmental Policy Act
NNSA	National Nuclear Security Agency
NSF	National Science Foundation
OCS	Outer Continental Shelf
OIG	Office of Inspector General
OMB	Office of Management and Budget
OSTI	Office of Scientific and Technical Information
OTA	Other Transactions Authority
PII	Personal Identifiable Information
R&D	Research and Development
RFI	Request for Information
RFP	Request for Proposal
SAM	System for Award Management
SciENcv	Science Experts Network Curriculum Vita
SMART	Specific, Measurable, Attainable, Realistic, and Timely
SOPO	Statement of Project Objectives
SPOC	Single Point of Contact
STEM	Science, Technology, Engineering, and Mathematics
TAA	Technical Assistance Agreement

TIA	Technology Investment Agreement
TRL	Technology Readiness Level
UCC	Uniform Commercial Code
UEI	Unique Entity Identifier
WBS	Work Breakdown Structure
WP	Work Proposal