



Department of Energy

Golden Field Office
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Golden, Colorado 80401-3393

DE-FOA-0000848
Amendment No. 000002

DATE: May 9, 2013

FROM: Pamela Brodie, Contracting Officer

TO: All Prospective Applicants

SUBJECT: Amendment No. 000002 to Announcement DE-FOA-0000848, Marine and Hydrokinetic System Performance Advancement

I. The purpose of this amendment is to:

- Revise SECTION III - ELIGIBILITY INFORMATION - to make Field Work Proposals (FWPs) a requirement of the application package if DOE National Laboratory Contractors or Other Federally Funded Research and Development Center (FFRDC) Contractors are proposed as partners.

II. All other parts of the Funding Opportunity Announcement remain unchanged.

III. All edits are highlighted in yellow to clearly call attention to revisions that have been made.

**FINANCIAL ASSISTANCE
FUNDING OPPORTUNITY ANNOUNCEMENT**



**U.S. Department of Energy
Energy Efficiency and Renewable Energy
Golden Field Office**

**Marine and Hydrokinetic System Performance Advancement
Funding Opportunity Announcement Number: DE-FOA-0000848
Announcement Type: Amendment 000002
CFDA Number: 81.087**

Issue Date: 04/22/2013

***Letter Of Intent Due Date: 05/13/2013, 11:59 PM Eastern Time**

***Application Due Date: 06/03/2013, 11:59 PM Eastern Time**

Applicants must create and submit a Letter of Intent through EERE Exchange by the due date to be eligible to submit a Full Application.

REGISTRATION REQUIREMENTS

There are several one-time actions that must be completed before submitting an Application in response to this Funding Opportunity Announcement (FOA), as follows:

- Register and create an account on EERE Exchange at <https://eere-exchange.energy.gov/>. This account will then allow the user to register for any open EERE FOAs that are currently in EERE Exchange. It is recommended that each organization or business unit, whether acting as a team or a single entity, use only one account as the contact point for each submission.

The applicant will receive an automated response when the Letter of Intent is received. This will serve as a confirmation of receipt. Please do not reply to the automated response. The applicant will have the opportunity to re-submit a revised Letter of Intent for any reason as long as the relevant submission is submitted by the specified deadline. The Users' Guide for Applying to the Department of Energy EERE Funding Opportunity Announcements is found at <https://eere-exchange.energy.gov/Manuals.aspx>.

The EERE Exchange registration does not have a delay; however, the remaining **registration requirements below could take several weeks to process and are necessary in order for a potential applicant to receive an award under this announcement**. Therefore, although not required in order to submit an Application through the EERE Exchange site, **all potential applicants lacking a DUNS number, or not yet registered with SAM or FedConnect should complete those registrations as soon as possible**.

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

- Obtain a Dun and Bradstreet Data Universal Numbering System (DUNS) number (including the plus 4 extension, if applicable) at <http://fedgov.dnb.com/webform>
- Register with the System for Award Management (SAM) at <https://www.sam.gov>. Designating an Electronic Business Point of Contact (EBiz POC) and obtaining a special password called an MPIN are important steps in SAM registration. Please update your SAM registration annually.
- 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/PublicPages/FedConnect_Ready_Set_Go.pdf
- Register in Grants.gov at <http://www.grants.gov/> to receive automatic updates when Amendments to this FOA are posted. However, please note that applications and letters of intent will not be accepted through Grants.gov.

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SECTION I – FUNDING OPPORTUNITY DESCRIPTION

A. Background

The mission of the U.S. Department of Energy (DOE) Wind and Water Power Technologies Office's (WWPTO's) Water Power Program, herein referred to as the "Program", is to research, develop, and test innovative technologies capable of generating renewable, environmentally responsible, and cost-effective electricity from U.S. water resources. These include Marine and Hydrokinetic (MHK) technologies that harness the energy from waves and from tidal, river, and ocean currents. The statutory authority for this Program is the Energy Independence and Security Act of 2007 (EISA) § 633(a) (2). Regulations applicable to this FOA are found in 10 CFR 600.

Studies recently completed by the Program show that the maximum technically recoverable energy from U.S. waves and tidal currents is approximately 1,420 terawatt-hours per year (TWh/yr). Of this amount, the total recoverable wave resource is estimated to be 1,170 TWh/yr along the outer continental shelf of the United States. In alignment with the relative resource potential, the Program's strategic investments will reflect greater emphasis on the development of wave energy technologies.

The Program's investments in MHK technologies aim to advance the technical readiness and performance of MHK systems and support the development of a robust and competitive MHK industry in the U.S. The Program's overarching goal is to develop innovative MHK systems with a credible potential for lowering the Levelized Cost of Energy (LCOE) below the local "hurdle" price at which MHK energy can compete with other regional generation sources without subsidies.

Over the past several years the Program has advanced the technical maturity of MHK systems across the full spectrum of technology readiness levels (TRLs). The investments in this area seek to address a wide range of technical challenges associated with these emerging technologies, with the goal of developing "commercial ready" systems. Through technology demonstrations, DOE and industry have identified the performance advancements needed to better position the next generation of MHK systems to compete in the marketplace. Consequently, the Program is pursuing two complementary paths of technology advancement through its planned initiatives:

- Advance *technology readiness* to reduce the technical risk of MHK technologies developed and to deliver robust products to the market.
- Advance *technology performance* to drive the cost of MHK systems towards economic competitiveness.

To date, the Program has invested heavily in advancing *technology readiness*. Under this Funding Opportunity Announcement (FOA) the Program will focus on advancing *technology performance* by making investments in component technology improvements that improve the performance of today's MHK systems. For the purposes of this FOA, "components" are defined as the elementary technologies or sub-systems that are combined to form the overall MHK system. Components may refer to hardware or software.

The Program recognizes that as a cost-saving measure, many developers are forced to use off-the-shelf components when building their systems. In most cases, these components are not optimized for the application in which they are employed. In this regard, the Program believes that substantial performance gains can be realized through the development and application of innovative components that are designed and built specifically for MHK applications. For example, purpose-designed/purpose-built components capable of performing within the operating ranges and under the conditions and environments specific to MHK systems will help ensure that MHK systems perform efficiently and reliably, and thus improve the likelihood that these innovative technologies can cost-effectively compete in the marketplace.

B. Objectives

The objective of the MHK System Performance Advancement (SPA) FOA is to advance *technology performance* of existing marine and hydrokinetic systems through the development and application of innovative components that are designed and built specifically for MHK applications. For the purposes of this FOA, SPA will be measured as increasing the “power to weight ratio (PWR)” and/or “availability” of MHK systems. Improvements in these criteria are viewed as critical drivers in reducing the levelized cost of energy (LCOE). This FOA will focus on improving the cost competitiveness of systems already in development, with the goal of advancing the *technology performance* of these systems.

This FOA will support component development projects in three topic areas that have the greatest potential to impact power to weight ratio and availability:

- Topic Area 1: *Advanced Controls* – to improve energy capture, availability, and safety.
- Topic Area 2: *Next-Gen Power Take-Off (PTO)* – to increase energy efficiency, reduce weight, and improve reliability.
- Topic Area 3: *Optimized Structures* – to improve energy capture, reduce weight, and improve reliability.

The technical proposals must:

- a) address one or both of the SPA goals (described below),
- b) fall within one of the three topic areas,
- c) demonstrate that feasibility of the proposed component technologies has already been verified through, at a minimum, completion of basic analytical and laboratory studies, and
- d) include project involvement of a MHK system developer.

Under the scope of work, awardees should develop component designs, build the prototype component and validate its performance. Projects under all topic areas are expected to validate performance by building prototype hardware and testing independent of the system, with one exception. Applicants proposing innovative Advanced Controls projects under Topic Area 1 may provide justification for only verifying performance through numerical modeling and simulation. Applications under this FOA should not include system integration and testing (due to funding limitations). Instead, a *system integration plan* should be included as a project deliverable which will address component-system interface requirements such as design and performance

specifications, system layout and design drawings, and any other information relevant to ensuring the functionality of the component within a complete MHK system. The Applicant will also include in its scope of work an *impact analysis* detailing expected impacts of the component technology development to the targeted MHK system’s performance as it relates to the System Performance Advancement Goals set in the application. The applicant will also quantify the reduction in levelized cost of energy of the device that results from meeting their target System Performance Advancement Goal(s).

C. System Performance Advancement (SPA) Goals

The SPA goals described below have the potential to significantly improve MHK system LCOE through lower capital expenditures, lower operating and maintenance costs, and/or improvements in energy production. Under this System Performance Advancement FOA, the Program will invest in innovative component concepts that will enable system developers to achieve one or both of the SPA goals, once the components are fully integrated in the intended MHK system. Each SPA goal will have associated component performance metric(s) that will serve as the design targets and measures for validation of component performance improvement. FOA applicants, whether led by a system or component developer (see Teaming section below), must have thorough knowledge of the MHK system targeted for performance advancement. The system perspective is necessary in order to assess the projected impact of component performance advancements on system performance and LCOE.

- 1) SPA Goal: Increase system PWR (kilowatts per metric ton)

Power to Weight Ratio (PWR) is defined as the ratio of effective power to weight in air of the device (see eqn. below). Improvement in PWR can be achieved by increasing the energy capture and conversion efficiency of the device or by reducing its weight. PWR drives cost throughout the life cycle, impacting device capital cost, handling equipment size and cost, difficulty of installation, deployment, and recovery.

Applicants must quantify baseline system PWR value, and the target system PWR value for a single system that can be achieved via component technology innovations developed in this FOA.

$$PWR = \frac{\text{Rated Capacity} \times \text{Capacity Factor}}{\text{Weight in Air}}$$

Where,

Rated Capacity (kW) is the expected power that the system is designed to produce.

Capacity factor is a ratio of the actual power produced at a site to the power produced by the device if operating at rated capacity, over a given time (typically one year).

- Capacity factor used for both the baseline and target values shall be for the same site and assumed resource.

Weight in Air (metric tons)

- Includes all weight that impacts logistics and handling
- Does not include weight of cables, moorings, or any other components assembled on-site.
- Permanent ballast is included.

- 2) SPA Goal: Increase system availability (%) and reduce the number of maintenance visits per year.

Availability is the percentage of time a system is operable over the service life of the system (see equation below). Availability encompasses factors of reliability such as Mean Time Between Failure (MTBF), time to repair, and planned maintenance. Therefore, achieving a high availability percentage along with reduced number of maintenance visits per year results in lower LCOE through 1) an increase in the system's annual delivered energy; and 2) overall reduced Operations & Maintenance (O&M) cost of the MHK system through reduced component repair and replacement costs, and reduced logistic and labor costs associated with mobilizing vessels and crews to perform maintenance.

Applicants must define their baseline and target availability for a single system, and planned and unplanned maintenance visits per year that can be achieved via component technology innovations developed in this FOA.

$$Availability = \frac{Operable\ Time}{Operable\ Time + Down\ Time}$$

Where,

$$Operable\ Time = Service\ Life - Down\ Time$$

Down Time should at a minimum take into consideration:

- Mean Time Between Failures (MTBF) of critical components
- Number of maintenance visits per year (planned and unplanned)
- Weather windows for maintenance visits
- Time to retrieve and redeploy the system
- Mean Time To Repair (MTTR) of critical components

The component technology innovations developed through projects awarded under this FOA should address one or more of the SPA goals. In order to evaluate the potential impact of the component technology development, applications must include the following information: 1) a definition of the component performance metric(s), i.e. the measure of component performance improvement; 2) baseline and target values of the applicant-defined component performance metric(s); 3) a preliminary projection of how the component performance metric(s) will enable the system to meet target SPA goal value(s) set by the applicant, and 4) a preliminary statement and justification of the impact of system performance improvements to reduce the LCOE. Note that for the remainder of this document, the use of the term component performance metric(s) refers to the target component

performance metric value(s) set by the applicant, and the use of the term SPA goal(s) refers to the target SPA goal value(s) set by the applicant.

At the conclusion of the project, a successful awardee will have 1) validated that the component performance metric(s) are met, and 2) established that the targeted SPA goals are achievable and quantified LCOE reduction potential through an *impact analysis*.

D. Topic Area Descriptions

Note: Applicants may apply to more than one topic area; however, a separate application will be required for each topic area.

Topic Area 1 – Advanced Controls

The focus of this topic is the development of advanced controls for MHK devices. For the purpose of this FOA, advanced controls include all software and hardware that actively address both energy capture and system loading. Advanced controls, in the form of active tuning, have the potential to double the power output¹, and therefore the PWR of MHK systems. Besides optimizing energy capture, control system advancements could increase availability through optimizing system load, or application of predictive methods to enable preventive maintenance and/or prognostic health management.

Scope: Projects shall design advanced controls and perform numerical modeling and simulations to assess the various control strategies that are investigated. For advanced controls that make use of hardware currently available for system control, validation through testing of a physical model in a controlled or relevant environment is necessary. The scale and capabilities of the physical model should be sufficient to validate the control strategy and that the component performance metric(s) are met. To explore the full performance improvement potential offered by advanced controls, innovative concepts that go beyond the limitations of control hardware available today are also encouraged. For these projects, applicants must justify that numerical modeling and simulations are sufficient to verify component performance metric(s). The *system integration plan* must identify any hardware development, sensors (input signals) and capabilities required to enable advanced controls. An *impact analysis* (see Section I.B) will also be required.

Topic Area 2 – Next-Gen Power Take-Off (PTO)

The focus of this topic is the development of next-gen power take-off (PTO) for MHK devices. For the purpose of this FOA, the PTO is a sub-system that includes all hardware required to convert the mechanical motion of the primary energy capture stage (e.g., float, rotor/turbine) into electrical power, but doesn't include the primary energy capture stage itself. In addition, mechanical motion converters (e.g., gearboxes), shafts, seals, bearings, and all other drivetrain components are considered components within the PTO sub-system. PWR can be increased through a combination of design compactness, weight reduction, and efficiency improvements.

¹ Li, G., G. Weiss, M. Mueller, Townley, and M. Belmont, "Wave energy converter control by wave prediction and dynamic programming," *Renewable Energy*, vol. 48, no. 0, pp. 392–403, Dec. 2012.

The PTO could also be designed to improve availability through more reliable components, increased redundancies, and modularity to reduce frequency of maintenance and time to repair. Designs that use fewer hydraulic components or eliminate them completely could reduce the maintenance demands of the system.

Scope: Proposed projects shall design a PTO sub-system or individual PTO component(s). A prototype of the PTO sub-system or PTO component(s) should be fabricated and tested independent of the system. At a minimum, this prototype will be tested in a laboratory facility under controlled or relevant conditions to validate its ability to achieve the component performance metric(s). A *system integration plan* and *impact analysis* (see Section I.B) will also be required.

Topic Area 3 – Optimized Structures

The focus of this topic is the optimization of structures for MHK devices. For the purpose of this FOA, “structures” can refer to load bearing structures such as the hull or tower, non-load bearing structures that serve as housings or compartments, and hydrodynamic surfaces used to capture energy such as a float or rotor/turbine. The topic does not include moorings and base foundations. Optimized structures include, for example, advancements in the primary energy capture stage and/or overall device geometry, materials, or manufacturing techniques. Structures can be optimized to improve energy capture thereby increasing PWR. Hull geometries can be optimized to reduce hydrodynamic loading for survival in extreme conditions. This can increase availability by minimizing the loads transmitted to other components. New materials and manufacturing techniques can reduce overall weight or improve structural characteristics impacting PWR and availability. It is important that these improvements are not made at the expense of strength and/or affordability. Both will be key factors in design tradeoffs to achieve optimal performance.

Scope: Projects will develop and test an optimized structure. Whether improvements are hydrodynamic or structural in nature, the proposed work shall include testing of a physical model or prototype in a controlled or relevant environment to validate meeting the component performance metric(s). This may include wave basin, water tunnel or flume testing of physical models. Demonstration of new materials and manufacturing techniques may include building prototypes of representative joints, parts, and sections that are tested in the laboratory to validate structural characteristics. A *system integration plan* and *impact analysis* (see Section I.B) will also be required.

E. Grant Application Requirements

Project Period

Projects proposed under all topic areas will have up to 24 months to complete component design, build scaled prototypes, perform testing for metric validation, and complete both a *system integration plan* and *impact analysis*. Projects under Topic Area 1 that can justify plans for verification only (no testing), will have up to 18 months for completion.

Address FOA Objectives -

To be considered for funding under this FOA, applicants must demonstrate that the proposed component development: a) addresses one or both of the SPA goals, b) falls within one of the three topic areas, and c) has, at a minimum, completed basic analytical and laboratory studies to verify feasibility of the technology. Applications should include evidence (via sound engineering principles and analysis) to support that the component performance metric(s) can be met. Applications should further include evidence that the SPA goals can be met upon integration of the component technology. The extent to which claims are supported by quantitative analyses and calculations will be considered in the application review process.

Project Narrative -

The grant application, through the Project Narrative, should describe in sufficient detail the technical approach to prove the technical feasibility of the proposed component technology. The technical development plan should also address the approach for validation of the component performance metric(s).

Identification of test facility or site (where applicable) -

Applications should specify an appropriate test facility or site at which laboratory and/or in-water testing will be performed. Agreements/partnerships with these facilities that can be secured and included with the application are encouraged.

Teaming -

To achieve the objectives of this FOA, applicant teams must include expertise in the following three critical areas: (1) prototype component development, (2) testing (as necessary), and (3) system integration. It is anticipated that the majority of teams will be led by system developers. Teams led by component developers must demonstrate a strong partnership and engagement of at least one MHK system developer. The roles and responsibilities of team members and key personnel shall be clearly described in the application.

Project Deliverables -

- Project Management Plan (PMP) - A PMP will be required within three months of the award start date and will be used to lead and manage the project. The PMP will provide detailed project information including project objectives, deliverables, schedules and Gantt charts, technical risk mitigation table, risk management procedures, funding and costing profiles, work breakdown schedules, and project organization and structure.
- Component Design Report – This report will include any tradeoff studies, numerical predictions, design drawings and schematics.
- Intellectual Property (IP) Management Plan - A final IP Management Plan must be submitted within six weeks of the effective date of the EERE funding agreement.
- Test Report (where applicable) - A final test report will be required which details the test plan for the physical model testing including a description of the test setup, inclusion of both raw and processed data, a thorough analysis of the test data, and validation of the component performance metric(s).
- Periodic Progress Reports/Presentations, quarterly reports, and annual peer review presentations.

- Final Technical Report – the final technical report will provide a summary of the completed design, and testing results. A *system integration plan* needs to be included which addresses interface requirements such as design and performance specifications, system layout and design drawings, and any other information relevant to insuring the functionality of the component within a complete MHK system. The final technical report also needs to include an *impact analysis* detailing expected impacts of the component technology development to the targeted MHK system’s performance as it relates to the System Performance Advancement goals set in the application and system LCOE.

Note: All data generated through numerical analysis and prototype testing is to be delivered through interim and final reporting.

SECTION II – AWARD INFORMATION

A. Type of Award Instrument

DOE anticipates awarding grants under this funding opportunity announcement.

B. Estimated Funding

Approximately \$13 Million in federal funds is expected to be available for new awards under this announcement.

C. Maximum and Minimum Award Amount

DOE expects to fund each award according to the ranges shown in **Table 1** below for the different Topic Areas.

D. Expected Number of Awards

DOE anticipates making a total of 8 to 10 awards under this announcement. The number of awards expected under each topic area is indicated in **Table 1** below.

DOE reserves the right to fund, in whole or in part, any, all, or none of the applications submitted in response to this announcement and will award that number of financial assistance grants which serves the public purpose and is in the best interest of the Federal Government.

E. Anticipated Award Amount

Table 1: Summary of Award Information

	Topic Area 1: Advanced Controls	Topic Area 2: Next Gen PTO	Topic Area 3: Optimized Structures
Anticipated Number of Awards	Up to 6	Up to 2	Up to 2
Project Duration	18* or 24 months	Up to 24 months	Up to 24 months
Maximum Federal Funding per Award	\$500K* or \$2.0M	\$3.0M	\$1.0M
Minimum Required Non-Federal Cost Share	20%	20%	20%
Total Estimated Cost per Award (DOE funding and cost share)	\$625K* or \$2.5M	\$3.75M	\$1.25M

* Projects under Topic Area 1 proposing verification only (no testing).

F. Period of Performance

DOE anticipates making awards with a period of performance of up to 24 months. For Applicants under Topic Area 1 proposing verification only (no testing), DOE anticipates making awards with a period of performance of up to 18 months.

G. Type of Application

DOE will accept only new applications under this announcement (i.e., applications for renewals of existing DOE funded projects will not be considered).

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

The federal funds distributed under this FOA are subject to the National Environmental Policy Act, 42 U.S.C. §§ 4321 et seq. (NEPA). NEPA requires federal agencies to integrate environmental values into their decision-making processes by considering the environmental impacts of their proposed actions. For additional background on NEPA, please see DOE's NEPA website, at <http://nepa.energy.gov/>.

While NEPA compliance is a federal agency responsibility and the ultimate decisions remain with the federal agency, all projects selected for 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.

I. Performance of Work in the United States

EERE strongly encourages interdisciplinary and cross-sectoral collaboration spanning organizational and national boundaries. Such collaboration enables the achievement of scientific and technological outcomes that were previously viewed as extremely difficult, if not impossible.

EERE requires all work under EERE funding agreements to be performed in the United States. Prime recipients must expend 100% of the total project cost in the United States.

Applicants and prime recipients may request a waiver of this requirement. Applicants must include a written waiver request in the Full Application. Prime recipients must submit any waiver requests in writing to the assigned DOE Contracting Officer. The DOE Contracting Officer has discretion to waive this requirement if he/she determines that it will further the purposes of this FOA and is otherwise in the interests of EERE. See Section IV.C.13 of the FOA for waiver request information.

SECTION III - ELIGIBILITY INFORMATION

A. Eligible Applicants

1. Individuals

U.S. citizens and lawful permanent residents are eligible to apply for funding as a prime recipient or subrecipient.

2. Domestic Entities

For-profit entities, educational institutions, and nonprofits² that are incorporated (or otherwise formed) under the laws of a particular State or territory of the United States are eligible to apply for funding as a prime recipient or subrecipient.

State, local, and tribal government entities are eligible to apply for funding as a prime recipient or subrecipient.

DOE/NNSA Federally Funded Research and Development Centers (FFRDCs) and DOE Government-Operated Government-Owned laboratories (GOGOs) are eligible to apply for funding as a prime recipient or subrecipient.

Non-DOE/NNSA FFRDCs and non-DOE GOGOs are eligible to apply for funding as a subrecipient, but are not eligible to apply as a prime recipient.

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

3. Foreign Entities

Foreign entities, whether for-profit or otherwise, are eligible to apply for funding under this FOA.

Other than as provided in the “Individuals” or “Domestic Entities” sections above, all prime recipients receiving funding under this FOA must be incorporated (or otherwise formed) under the laws of a State or territory of the United States. If a foreign entity applies for funding as a prime recipient, it must designate in the Full Application a subsidiary or affiliate incorporated (or otherwise formed) under the laws of a State or territory of the United States to be the prime recipient. The Full Application must state the nature of the corporate relationship between the foreign entity and domestic subsidiary or affiliate.

²Nonprofit 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.

Foreign entities may request a waiver of this requirement in the Full Application. See Section IV.C.13 (a) for waiver request information. The DOE Contracting Officer has discretion to waive this requirement if he/she determines that it will further the purposes of this FOA and is otherwise in the interests of EERE.

4. Incorporated Consortia

Incorporated consortia, which may include domestic and/or foreign entities, are eligible to apply for funding as a prime recipient or subrecipient. For consortia incorporated (or otherwise formed) under the laws of a State or territory of the United States, please refer to “Domestic Entities” above. For consortia incorporated in foreign countries, please refer to the requirements in “Foreign Entities” above.

Each incorporated consortium must have an internal governance structure and a written set of internal rules. Upon request, the consortium must provide a written description of its internal governance structure and its internal rules to the DOE Contracting Officer.

5. Unincorporated Consortia

Unincorporated consortia, which may include domestic and foreign entities, must designate one member of the consortium to serve as the prime recipient/consortium representative. The prime recipient/consortium representative must be incorporated (or otherwise formed) under the laws of a State or territory of the United States. The eligibility of the consortium will be determined by the eligibility of the prime recipient/consortium representative under Section III.A of the FOA.

Upon request, unincorporated consortia must provide the DOE Contracting Officer with a collaboration agreement, commonly referred to as the articles of collaboration, which sets out the rights and responsibilities of each consortium member. This agreement binds the individual consortium members together and should discuss, among other things, the consortium's:

- Management structure;
- Method of making payments to consortium members;
- Means of ensuring and overseeing members' efforts on the project;
- Provisions for members' cost sharing contributions; and
- Provisions for ownership and rights in intellectual property developed previously or under the agreement.

B. Cost Sharing

The cost share must be at least 20% of the total allowable costs for research and development projects (i.e., the sum of the Government share, including FFRDC contractor costs if applicable, and the recipient share of allowable costs equals the total allowable cost of the project) and must come from non-Federal sources unless otherwise allowed by law. (See 10 CFR Part 600 for the applicable cost sharing requirements.)

C. Other Eligibility Requirements

DOE National Laboratory Contractors and Other Federally Funded Research and Development Center (FFRDC) Contractors.

1. A DOE National Laboratory Contractor is eligible to apply for funding or be proposed as a team member under this announcement if its cognizant Contracting Officer provides written authorization and this authorization is submitted with the application. If a DOE National Laboratory Contractor is selected for award, the proposed work will be authorized under the DOE work authorization process and performed under the laboratory's Management and Operating (M&O) contract.
2. 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, will not adversely impact execution of the DOE assigned Programs at the laboratory.
3. A FFRDC contractor is eligible to apply for funding or may be proposed as team members on another entity's application under this announcement, subject to the following guidelines:

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

Authorization for DOE FFRDCs. The cognizant Contracting Officer for the FFRDC must authorize in writing the use of a DOE FFRDC contractor 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, will not adversely impact execution of the DOE assigned Programs at the laboratory.

Value/Funding. The value of, and funding for, the FFRDC contractor portion of the work will not normally be included in the award to a successful applicant. Usually, DOE will

fund a DOE FFRDC contractor through the DOE field work proposal system (FWP) and other FFRDC contractors through an interagency agreement with the sponsoring agency. FWP will be required as part of the Content and Form of the Application. (See Section IV.C.9.)

Cost Share. The applicant's cost share requirement will be based on the total cost of the project, including the applicant's and the FFRDC contractor's portions of the effort.

Responsibility. The applicant, if successful, 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 applicant and the FFRDC contractor.

D. Questions Regarding Eligibility

DOE 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 submit an application in response to this FOA lies solely with the applicant.

SECTION IV – APPLICATION AND SUBMISSION INFORMATION

A. Address to Request Application Forms

The Application forms and instructions are available on EERE Exchange. To access these materials, 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 10MB. Files in excess of 10MB cannot be uploaded, and hence cannot be submitted for review. If a file exceeds 10MB but is still within the maximum page limit specified in the FOA it must be broken into parts and denoted to that effect.

(e.g. ControlNumber_LeadOrganization_Project_Part_1, Part_2, etc.)

B. Letter of Intent

Letter of Intent is required

Applicants are **required** to create a Letter of Intent in the EERE Exchange system at <https://eere-exchange.energy.gov/> prior to the application submission. Applicants may apply to more than one topic area; however, a separate Letter of Intent must be created for each separate topic area. The applicant will have the opportunity to submit a revised Letter of Intent for any reason as long as the relevant submission is submitted by the specified deadline. Letters of Intent will be used by DOE to plan for the merit review process. The letters should not contain any proprietary or sensitive business information. The letters will not be used for down-selection purposes, and do not commit an applicant to submit an application. **However, applicants must create a Letter of Intent in the EERE Exchange system at <https://eere-exchange.energy.gov/> by the due date below to be eligible to submit a Full Application.** A control number will be issued when an Applicant completes the Letter of Intent creation process. This control number must be included with the Application documents, as described in Section C. below.

The “Abstract” area within the Letter of Intent form in EERE Exchange should include the following information (max of 4000 characters):

1. SPA goal(s)
2. Brief technology description
3. Estimated total DOE funding request

Letter of Intent due date and time: **05/13/2013 at 11:59 PM Eastern Time**

Letters of Intent must be created in EERE Exchange at <https://eere-exchange.energy.gov/>.

C. Content and Form of Application

Applicants must complete the following application forms found on the EERE Exchange website at <https://eere-exchange.energy.gov/>, in accordance with the instructions. Note: Applicants will need to reference the Control Number assigned when they created an LOI. Note: Applicants who

submitted more than one LOI will need to insure they reference the correct related Control Number with each Application.

1. SF-424 – Application for Federal Assistance

Complete all required fields in accordance with the instructions on the form. The list of certifications and assurances in Field 21 can be found at <http://energy.gov/management/office-management/operational-management/financial-assistance/financial-assistance-forms>, under Certifications and Assurances. Note: The dates and dollar amounts on the SF 424 are for the complete project period and not just the first year, first phase or other subset of the project period. Save the information in a single PDF file titled “ControlNumber_LeadOrganization_App424”.

2. Project Summary/Abstract File

The project summary/abstract must contain a summary of the proposed activity 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, a description of the project, including methods to be employed, the potential impact of the project (i.e., benefits, outcomes), and major participants (for collaborative projects). This document must not include any proprietary or sensitive business information, as the Department may make it available to the public if an award is made. The project summary must not exceed 1 page when printed using standard 8.5” by 11” paper with 1” margins (top, bottom, left and right), single spaced, with font not smaller than 11 point. Save the information in a single PDF file titled “ControlNumber_LeadOrganization_Summary”.

3. Project Narrative File

The project narrative must not exceed 23 pages, including cover page, table of contents, charts, graphs, maps, photographs, and other pictorial presentations, when printed using standard 8.5” by 11” paper with 1 inch margins (top, bottom, left, and right), single spaced. EVALUATORS WILL REVIEW ONLY THE NUMBER OF PAGES SPECIFIED IN THE PRECEDING SENTENCE. The font must not be smaller than 11 point. Do not include any Internet addresses (URLs) that provide information necessary to review the application. See Section VIII.D for instructions on how to mark proprietary application information. Save the information in a single PDF titled “ControlNumber_LeadOrganization_Project”.

Note: The maximum file size that can be uploaded to the EERE Exchange website is 10MB. Files in excess of 10MB cannot be uploaded, and hence cannot be submitted for review. If a file exceeds 10MB but is still within the maximum page limit specified in the FOA it must be broken into parts and denoted to that effect.

(e.g. ControlNumber_LeadOrganization_Project_Part_1, Part_2, etc.)

The project narrative must include:

1. Project Objectives.
This section should provide a clear, concise statement of the specific objectives/aims of the proposed project.
2. Merit Review Criterion Discussion.
This section should be formatted to address each merit review criterion and sub-criterion listed in Part V. A. below. Provide sufficient information so that reviewers will be able to evaluate the application in accordance with these merit review criteria. **DOE WILL EVALUATE AND CONSIDER ONLY THOSE APPLICATIONS THAT SEPARATELY ADDRESS EACH MERIT REVIEW CRITERION AND SUB-CRITERION.**
3. Project Gantt Chart:
This section should outline as a function of time, month by month, all the important activities/tasks or phases of the project period in a Gantt chart. Successful applicants must use this project timetable to report progress.
4. Roles of Participants:
For multi-organizational or multi-investigator projects, describe the roles and the work to be performed by each participant/investigator, business agreements between the applicant and participants, and how the various efforts will be integrated and managed.
5. Facilities and Other Resources:
Identify the facilities (e.g., office, laboratory, computer, etc.) to be used at each performance site listed, and, if appropriate, indicate their capacities pertinent capabilities, relative proximity, and extent of availability to the project. Describe only those resources that are directly applicable to the proposed work. Provide any information describing the other resources available to the project, such as machine and electronics shops.
6. Equipment:
List important items of equipment already available for this project, and if appropriate, note the location and pertinent capabilities of each. If you are proposing to acquire equipment, describe comparable equipment, if any, already at your organization and explain why it cannot be used.
7. Tasks to be Performed:
Provide a clear, concise description of all tasks to be completed during the project performance. For each Task and Subtask, enter 1-2 paragraphs describing the purpose, approach, estimated cost, and expected outcomes. Applicants shall include both a *system integration plan* and *impact analysis* as final deliverables (do not include dates), as described in Section 1B. If applicable, the Tasks should be organized by project phases which correspond to major project milestones and deliverables.

Below is an example of the type of Task structure desired:

BUDGET PERIOD 1 [TITLE OPTIONAL]

Task 1.0 [Insert Title] \$

[Insert Description including milestones and deliverables]

Task 2.0 [Insert Title] \$

[Insert Description including milestones and deliverables]

Subtask 2.1 [Insert Title] \$

[Insert Description including milestones and deliverables]

Subtask 2.2 [Insert Title] \$

[Insert Description including milestones and deliverables]

8. Bibliography and References, if applicable:

Provide a bibliography for any references cited in the Project Narrative section. This section must include only bibliographic citations.

All the components of your Project Narrative must be within the Narrative page limit specified in paragraph 3. Documents listed below may be included as clearly marked appendices to your Narrative and will not count towards the Project Narrative page limit. Please note that some of the required documents listed below may have their own page limits to which you must adhere.

4. Resume File

Provide a resume for each key person proposed, including subawardees and consultants if they meet the definition of a key person. A key person is any individual who contributes in a substantive, measurable way to the execution of the project. The biographical information for each resume must not exceed 2 pages when printed on 8.5” by 11” paper with 1 inch margins (top, bottom, left, and right), single spaced, with font not smaller than 11 point and should include the information below, if applicable. Save the information in a single PDF file titled “ControlNumber_LeadOrganization_Resume”.

Note: The maximum file size that can be uploaded to the EERE Exchange website is 10MB. Files in excess of 10MB cannot be uploaded, and hence cannot be submitted for review. If a file exceeds 10MB but is still within the maximum page limit specified in the FOA it must be broken into parts and denoted to that effect.

(e.g. ControlNumber_LeadOrganization_Project_Part_1, Part_2, etc.)

- The resume file should include the following information for each key person identified:
Education and Training. Undergraduate, graduate and postdoctoral training; provide

institution, major/area, degree and year.

Professional Experience. Beginning with the current position list, in chronological order, professional/academic positions with a brief description.

Publications. Provide 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.

Synergistic Activities. List no more than 5 professional and scholarly activities related to the effort proposed.

- Of the key personnel identified in this file, indicate the Principal Investigator(s) (PI(s)).
- For Multiple Principal Investigators:

The applicant, whether a single organization or team/partnership/consortium, must indicate if the project will include multiple PIs. The decision to use multiple PIs for a project is the sole responsibility of the applicant. If multiple PIs will be designated, the application must identify the Contact PI/Project Coordinator and provide a “Coordination and Management Plan” that describes the organization structure of the project as it pertains to the designation of multiple PIs. This plan should, at a minimum, include:

- Process for making decisions on scientific/technical direction;
- Publications;
- Intellectual property issues;
- Communication plans;
- Procedures for resolving conflicts; and
- PIs’ roles and administrative, technical, and scientific responsibilities for the project.

The resume file does not have a page limitation.

5. Budget File

SF 424 A Excel, Budget Information – Non-Construction Programs File

You must provide a separate budget for each year of support requested and a cumulative budget for the total project period. Use the SF 424 A Excel, “Budget Information – Non Construction Programs” form on the DOE Financial Assistance Forms Page at <http://energy.gov/management/office-management/operational-management/financial->

[assistance/financial-assistance-forms](#). The SF424A provides columns for each individual budget-year as well as the commulative project-budget.

You may request funds under any of the Object Class Categories as long as the item and amount are necessary to perform the proposed work, meet all the criteria for allowability under the applicable Federal cost principles, and are not prohibited by the funding restrictions in this announcement (see Section IV, G). Save the information in a single Excel file titled “ControlNumber_LeadOrganization_SF424A”.

6. Budget Justification File (PMC 123.1)

PMC 123.1 Budget Justification File

You must justify the costs proposed in each Object Class Category/Cost Classification category using the PMC 123.1 Budget Justification File. The total project cost, including cost share (if applicable) and federal funding, must be represented in this document. Save the budget justification information in a single Excel file titled “ControlNumber_LeadOrganization_Budget”.

7. Letters of Commitment

Applicants must have a letter from each third party contributing cost share (i.e., a party other than the organization submitting the application) stating that the third party is committed to providing a specific minimum dollar amount of cost share. Identify the following information for each third party contributing cost share: (1) the name of the organization; (2) the proposed dollar amount to be provided; (3) the amount as a percentage of the total project cost; and (4) the proposed type of cost share – cash, services, or property. Letters of Commitment from parties participating in the project, exclusive of vendors, who will not be contributing cost share, but will be integral to the success of the project must be included as part of this file. Letters of Commitment will not count towards the Project Narrative page limit. Save the Letters of Commitment information in a single PDF file titled “ControlNumber_LeadOrganization_LOC”.

8. Subaward Budget File(s)

You must provide a separate budget (i.e., budget for each budget year and a cumulative budget) for each subawardee that is expected to perform work estimated to be more than \$100,000 or 50 percent of the total work effort (whichever is less). The SF424A provides columns for each individual budget-year as well as the cumulative project-budget. The total project cost, including cost share (if applicable) and Federal funding, must be represented in this document. Use the SF 424 A Excel for Non Construction Programs or the SF 424 C Excel for Construction s. This form is found on the DOE Financial Assistance Forms Page at <http://energy.gov/management/office-management/operational-management/financial-assistance/financial-assistance-forms>. Save each Subaward budget in a single Excel file titled “ControlNumber_LeadOrganization_Subawardee_SF424A”.

A PMC 123.1 Budget Justification file for the subaward budget is also required. The budget justification must include the same justification information described in Paragraph 6 above. Save each Subaward budget justification in a single Excel file titled “ControlNumber_LeadOrganization_Subawardee_Budget”.

9. Budget for DOE Federally Funded Research and Development Center (FFRDC) Contractor File, if applicable

If a DOE FFRDC contractor is to perform a portion of the work, you must provide a DOE Field Work Proposal (FWP) in accordance with the requirements in DOE Order 412.1 Work Authorization System. The DOE Order 412.1, Work Authorization System and the DOE O 412.1, Field Work Proposal form are available at the following link, under “DOE Budget Forms”: <https://www.directives.doe.gov/directives/current-directives/412.1-BOrder-a/view>. Save the Field Work Proposal in a single PDF file titled “ControlNumber_LeadOrganization_FFRDC_FWP”.

10. Authorization for non-DOE or DOE FFRDCs

Save the Authorization for non-DOE or DOE FFRDCs, as specified in Section III.C. Other Eligibility Requirements, in a single PDF file titled “ControlNumber_LeadOrganization_FFRDC_Auth”.

11. Environmental Questionnaire

You must complete the environmental questionnaire. Save the questionnaire in a single PDF file titled “ControlNumber_LeadOrganization_Env”.

12. SF-LLL Disclosure of Lobbying Activities

If applicable, complete the SF- LLL. Applicability: If any funds other than Federal appropriated funds have been paid or will be paid to any person for influencing or attempting to influence an officer or employee of any agency, a Member of Congress, an officer or employee of Congress, or an employee of a Member of Congress in connection with the grant/cooperative agreement, you must complete and submit Standard Form - LLL, "Disclosure Form to Report Lobbying." If applicable, save the SF-LLL in a single PDF file titled “ControlNumber_LeadOrganization_SF LLL”.

13. Waiver Request - (a) Foreign Entities and (b) Performance of Work in the United States (If Applicable)

(a) **Foreign Entities** As set forth in Section III.A.3, all prime recipients receiving funding under this FOA must be incorporated (or otherwise formed) under the laws of a State or territory of the United States. If a foreign entity applies for funding as a prime recipient, it must designate in the Full Application a subsidiary or affiliate incorporated (or otherwise formed) under the laws of a State or territory of the United States to be the prime recipient.

To seek a waiver of this requirement, the Applicant must submit an explicit waiver request in the Full Application, which includes the following information: entity name,

country (or state) of incorporation, description of the work to be performed by that entity, and the Countries in which the work will be performed. In the waiver request, the Applicant must demonstrate to the satisfaction of EERE that it would further the purposes of this FOA and is otherwise in the interests of EERE to have a foreign entity serve as the prime recipient. The Contracting Officer may require additional information before considering the waiver request. Save the Waiver Request(s) in a single PDF file titled “ControlNumber_LeadOrganization_Waiver.”

- (b) **Performance of Work in the United States** Section II.I requires that all work under EERE funding agreements be performed in the United States – i.e., prime recipients must expend 100% of the total project cost in the United States.

To seek a waiver of this requirement, the Applicant must submit an explicit waiver request in the Full Application, which includes the following information: the countries in which the work will be performed, a description of the work to be performed outside the U.S., and the rationale for performing the work overseas. In the waiver request, the Applicant must demonstrate to the satisfaction of the EERE that a waiver would further the purposes of this FOA and is otherwise in the interests of EERE. For example, an Applicant may seek to demonstrate the United States economic interest will be better served through a greater percentage of work performed outside the United States (e.g., provide evidence that expertise to develop a technology exists only outside the United States, but that ultimate commercialization of the technology will result in substantial benefits to the United States such as improved electricity reliability, increased employment, increased exports of U.S.-manufactured products, etc.). The Contracting Officer may require additional information before considering the waiver request. Save the Waiver Request(s) in a single PDF file titled “ControlNumber_PerformanceofWork_Waiver.”

14. Draft Intellectual Property (IP) Management Plan

Each application must include a draft IP Management Plan that will form the basis of the final IP Management Plan between the members of the consortia or team. The Project Team must submit the final and executed Intellectual Property Management plan to EERE within six weeks of the effective date of the EERE funding agreement.

The award will set forth the treatment of and obligations related to intellectual property rights between EERE and the individual members. The IP Management Plan should describe how the members will handle intellectual property rights and issues between themselves while ensuring compliance with Federal IP laws, regulations, and policies. (See Section VIII of this FOA for more details on applicable Federal IP laws and regulations.)

The following is a non-exhaustive list of examples of things that the IP Management Plan may cover:

- The treatment of confidential information between members (e.g., the use of non-disclosure agreements);

- The treatment of background IP (*e.g.*, any requirements for identifying it or making it available);
- The treatment of inventions made under the project (*e.g.*, any requirements for disclosing to the other members, filing patent applications, paying for patent prosecution, and cross-licensing or other licensing arrangements between the members);
- The treatment of data produced, including software, under the project (*e.g.*, any publication process or other dissemination strategies, copyrighting strategy or arrangement between members);
- Any technology transfer and commercialization requirements or arrangements between the members;
- The treatment of any intellectual property issues that may arise due to a change in membership of the consortia or team; and
- The handling of disputes related to intellectual property between the members.

Save the Draft IP Management Plan as a single PDF file titled
“ControlNumber_PerformanceofWork_IP.”

Summary of Required Forms/Files

Your application must include the following documents:

Name of Document	Section	Format	File Name
SF 424 - Application for Federal Assistance	IV.C.1	Part of Adobe Application Package	ControlNumber_LeadOrganization_App424
Project Summary/Abstract File	IV.C.2	PDF	ControlNumber_LeadOrganization_Summary
Project Narrative File	IV.C.3	PDF	ControlNumber_LeadOrganization_Project
Resume File	IV.C.4	PDF	ControlNumber_LeadOrganization_Resume
SF 424A Excel – Budget Information for Non-Construction Programs File	IV.C.5	Excel	ControlNumber_LeadOrganization_SF424A
PMC 123.1 Budget Justification File	IV.C.6	Excel	ControlNumber_LeadOrganization_Budget
Letters of Commitment	IV.C.7	PDF	ControlNumber_LeadOrganization_LOC
SF-424A Subaward Budget File(s), if applicable	IV.C.8	Excel	ControlNumber_LeadOrganization_Subawardee_SF424A
PMC 123.1 Subaward Budget Justification(s), if applicable		Excel	ControlNumber_LeadOrganization_Subawardee_Budget
Budget for Federally Funded Research and Development Center (FFRDC) Contractor File, if applicable.	IV.C.9	PDF	ControlNumber_LeadOrganization_FFRDC_FWP
Authorization from cognizant Contracting Officer for FFRDC, if applicable.	IV.C.10	PDF	ControlNumber_LeadOrganization_FFRDC_Auth

Environmental Questionnaire	IV.C.11	PDF	ControlNumber_LeadOrganization_Env
SF-LLL Disclosure of Lobbying Activities, if applicable	IV.C.12	PDF	ControlNumber_LeadOrganization_SFLLL
Waiver Request: Foreign Entities and / or Performance of Work in the United States, if applicable	IV.C.13	PDF	ControlNumber_LeadOrganization_Institution_Waiver
Draft IP Management Plan	IV.C.14	PDF	ControlNumber_LeadOrganization_Institution_IP

D. Submissions from Successful Applications

If selected for award, DOE reserves the right to request additional or clarifying information for any reason deemed necessary, including, but not limited to

- Indirect cost information
- Other budget information
- Commitment Letter from Third Parties Contributing to Cost Share, if applicable
- Representation of Limited Rights Data and Restricted Software, if applicable
- Environmental Questionnaire

E. Submission Dates and Times

1. Letters of Intent Due Date

Letters of Intent must be received by **05/13/2013**, not later than **11:59 PM Eastern Time**. You are encouraged to create the Letter of Intent well before the deadline. **LETTERS OF INTENT MUST BE CREATED AND SUBMITTED THROUGH EERE EXCHANGE AT <https://eere-exchange.energy.gov/>**. Applicants must submit a Letter of Intent by the due date to be eligible to submit an Application.

2. Application Due Date and Submission Time

Applications must be received by **06/03/2013**, not later than **11:59 PM Eastern Time**. You are encouraged to transmit your application well before the deadline. **APPLICATIONS RECEIVED AFTER THE DEADLINE WILL NOT BE REVIEWED OR CONSIDERED FOR AWARD.**

F. Intergovernmental Review

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

G. Funding Restrictions

Cost Principles. Costs must be allowable in accordance with the applicable Federal cost principles referenced in: 2 CFR 220 for Educational Institutions; 2 CFR 225 for State, Local, and Indian Tribal Governments; 2 CFR 230 for Non Profit Organizations and FAR Part 31 for commercial organizations.

Pre-award Costs. Recipients may charge to an award resulting from this announcement pre-award costs that were incurred within the ninety (90) calendar day period immediately preceding the effective date of the award and no earlier than the selection date, if the costs are allowable in accordance with the applicable Federal cost principles referenced in 10 CFR Part 600. Recipients must obtain the prior approval of the Contracting Officer for any pre-award costs that are for periods greater than this 90 day calendar period.

Pre-award costs are incurred at the applicant's risk. DOE is under no obligation to reimburse such costs if for any reason the applicant does not receive an award or if the award is made for a lesser amount than the applicant expected.

If recipients are State or Local Governments, they may not incur pre-award costs prior to award, without prior approval of the DOE Contracting Officer.

H. Submission and Registration Requirements

1. Where to Submit

LETTERS OF INTENT AND APPLICATIONS MUST BE SUBMITTED UNDER THIS ANNOUNCEMENT THROUGH EERE EXCHANGE at <https://eere-exchange.energy.gov/> TO BE CONSIDERED FOR AWARD. You cannot submit a Letter of Intent and an application through EERE Exchange unless you are registered. Please read the registration requirements below carefully and start the process immediately. Letters of Intent and applications submitted by any other means will not be accepted.

If you have problems completing the registration process or submitting your application, send an email to the EERE Exchange helpdesk at EERE-ExchangeSupport@hq.doe.gov. It is the responsibility of the applicant to verify successful transmission, prior to the Application due date and time.

2. Registration Process Requirements

There are several one-time actions that must be completed before submitting an Application in response to this Funding Opportunity Announcement (FOA), as follows:

- Register and create an account on EERE Exchange at: <https://eere-exchange.energy.gov/>. This account will then allow the user to register for any open EERE FOAs that are currently in Exchange. It is recommended that each organization or business unit, whether acting as a team or a single entity, use only one account as the appropriate contact point for each submission.

The applicant will receive an automated response when the Letter of Intent and Application is received. This will serve as a confirmation of receipt. Please do not reply to the automated response. The applicant will have the opportunity to re-submit a revised Letter of Intent and Application for any reason as long as the relevant submission is submitted by the specified deadline. The Users' Guide for Applying to the Department of Energy EERE Funding Opportunity Announcements is found at <https://eere-exchange.energy.gov/Manuals.aspx>.

The EERE Exchange registration does not have a delay; however, the remaining **registration requirements below could take several weeks to process and are necessary in order for a potential applicant to receive an award under this announcement.** Therefore, although not required in order to submit an Application through the EERE Exchange site, **all potential applicants lacking a DUNS number, or not yet registered with SAM or FedConnect should complete those registrations as soon as possible.**

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

- Obtain a Dun and Bradstreet Data Universal Numbering System (DUNS) number (including plus 4 extension, if applicable) at <http://fedgov.dnb.com/webform>
- Register with the System for Award Management (SAM) at: <https://www.sam.gov>. Designating an Electronic Business Point of Contact (EBiz POC) and obtaining a special password called an MPIN are important steps in SAM registration. Please update your SAM registration annually.
- 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/PublicPages/FedConnect_Ready_Set_Go.pdf
- Register in Grants.gov to receive automatic updates when Amendments to this FOA are posted. However, please note that applications will not be accepted through Grants.gov. <http://www.grants.gov/>

3. Electronic Authorization of Applications and Award Documents

Submission of an application and supplemental information under this announcement through electronic systems used by the Department of Energy, including EERE Exchange, constitutes the authorized representative's approval and electronic signature.

Submission of award documents, including modifications, through electronic systems used by the Department of Energy, including FedConnect, constitutes the authorized representative's approval and acceptance of the terms and conditions of the award. Award

acknowledgement via FedConnect constitutes the authorized representative's electronic signature.

SECTION V - APPLICATION REVIEW INFORMATION

A. Initial Compliance Review

Prior to a comprehensive merit evaluation, DOE will perform an initial review to determine that (1) the applicant is eligible for an award; (2) the information required by the announcement has been submitted; (3) all mandatory requirements are satisfied; and (4) the proposed project is responsive to the objectives of the funding opportunity announcement, considering that the application

- a) addresses one or both of the SPA goals,
- b) falls within one of the three topic areas,
- c) demonstrates that feasibility of the proposed component technologies has already been verified through, at a minimum, completion of basic analytical and laboratory studies, and
- d) includes project involvement of a MHK system developer.

If an application fails to meet these requirements, it may be deemed non-responsive and eliminated from full Merit Review.

B. Merit Review Criteria

Applications will be evaluated against the merit review criteria shown below.

The following merit review evaluation criteria will be used in the comprehensive evaluation of applications for Topic Areas 1, 2, and 3. For each criterion, the weighting (out of a total of 100%) is indicated to show its relative importance. The four merit review criteria are individually weighted as a percentage of the total score in the evaluation as indicated below. The sub-criteria under each of the four main criteria are not individually weighted.

Criterion I: Technical Concept, Innovation, and Impact (Weight: 35%)

- The clarity and extent to which the application describes the technical concept and the credibility of the concept as supported by sound engineering principles and analysis
- Level of innovation, i.e. the degree to which the proposed technical concept makes use of novel technologies or approaches
- Level of impact in the proposed technical concept, i.e. the degree of component and system performance improvement over applicant defined baselines and LCOE reduction potential
- Degree to which the applicant-defined system and component performance baselines are consistent with the current industry state of the art
- Extent to which the applicant demonstrates how the component performance metric(s), once met, will result in achieving the SPA goal(s) (see Section 1C)
- Likelihood that the technology will be integrated into the intended MHK system design

Criterion II: Technical Approach (Weight: 30%)

- Thoroughness of the work plan to meet technical objectives as evidenced by the tasks, schedule, milestones, deliverables
- Extent to which technical risks and approach to address risks are identified and explained
- Adequacy of the technical approach to validate (or to verify, in the case of Topic Area 1 applications where justification for verification only (no-testing) has been made) that the component performance metric(s) have been met at the end of the project

Criterion III: Team Qualification and Resources (Weight: 20%)

- Capability of the team to address all aspects of the proposed work including access to required equipment, facilities, analytical support, modeling capabilities, and other necessary resources for performing the work
- Clarity and appropriateness of the roles of the team members including partnership(s) between component and system developers
- The qualifications, capabilities, and experience of the proposed Principal Investigator (PI), team leader and key personnel who are critical in achieving the application objectives

Criterion IV: Project Management (Weight: 15%)

- The adequacy, completeness, and feasibility of the proposed tasks to achieve proposed project deliverables within the project budget
- Degree to which the proposed work schedule (Gantt Chart), milestones, and deliverable are clearly stated, organized, timely, and achievable within the proposed budget
- The effectiveness of the approach to managing the team, including intellectual property management, defining the roles of team members, ensuring communication and coordination among team members

C. Policy Factors

The selection official may consider the following policy factors in the selection process:

- The level of technological diversity.
- Alignment with the mission and goals of the Program.
- Commercialization potential and/or relevance to multiple system applications.

D. Review and Selection Process

1. Merit Review

Applications Subject to Merit Review

Applications that pass the initial compliance review will be subjected to a merit review in accordance with the guidance provided in the “Department of Energy Merit Review Guide for Financial Assistance”. This guide is available at <http://energy.gov/management/office-management/operational-management/financial-assistance> under Financial Assistance Policy and Guidance.

It is very important that the Project Abstract and Project Narrative file used during the Merit Review Process do not contain any Personally Identifiable Information as described in Appendix B.

2. Pre-Selection Clarification

EERE may determine that pre-selection clarifications are necessary from one or more applicants. These pre-selection clarifications will solely be for the purposes of clarifying the application, and will be limited to information already provided in the application documentation. 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; however, in rare circumstances the clarifications could be conducted through in-person meetings at EERE or applicant site.

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. Selection for participation in pre-selection clarifications does not signify that applicants have been selected for negotiation of award or that applicant is among the top ranked applications. EERE will not reimburse applicants for travel and other expenses relating to the pre-selection clarifications, nor will these costs be eligible for reimbursement as pre-award costs.

3. Selection Official Consideration

The Selection Official may consider the merit review recommendation, program policy factors, and the amount of funds available.

4. Government Discussions with Applicant

The Government may enter into discussions with a selected applicant for any reason deemed necessary, including, but not limited to: (1) the budget is not appropriate or reasonable for the requirement; (2) only a portion of the application is selected for award; (3) the Government needs additional information to determine that the recipient is capable of complying with the requirements in 10 CFR Part 600; and/or (4) special terms and conditions are required. Failure to resolve satisfactorily the issues identified by the Government will preclude award to the applicant.

E. Anticipated Notice of Selection and Award Dates

DOE anticipates notifying applicants selected for award in August, 2013, and making awards in September, 2013.

SECTION VI – AWARD ADMINISTRATION INFORMATION

A. Award Notices

1. Rejected Submissions

Noncompliant and nonresponsive Full Applications (see Section V.A.1.) are rejected by the Contracting Officer and are not reviewed or considered for award. The Contracting Officer sends a notification letter by email to the technical and administrative points of contact designated by the Applicant in EERE Exchange. The notification letter states the basis upon which the Full Application was rejected.

2. Full Application Notifications

EERE promptly notifies Applicants of its determination. EERE sends a notification letter by email to the technical and administrative points of contact designated by the Applicant in EERE Exchange. The notification letter may inform the Applicant that its Full Application was selected for award negotiations, or not selected. 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.

a. SUCCESSFUL APPLICANTS

A notification letter selecting a Full Application for award negotiations does not authorize the Applicant to commence performance of the project. **EERE selects Full Applications for award negotiations, not for award.** Applicants do not receive an award until award negotiations are complete and the Contracting Officer executes the funding agreement.

Please refer to Section IV.G.2 of the FOA for guidance on pre-award costs.

b. POSTPONED SELECTION DETERMINATIONS

A notification letter postponing a final selection determination until a later date 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.

Please refer to Section IV.G.2 of the FOA for guidance on pre-award costs.

c. 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. If the application was not selected, the written notice shall include the FMR Panel's comments.

3. Notice of Award

A Financial Assistance Award or Assistance Agreement issued by the Contracting Officer is the authorizing award document. It normally includes, either as an attachment or by reference: (1)

Assistance Agreement Form; (2) Special Terms and Conditions; (3) Intellectual Property Provisions; (4) Statement of Project Objectives; (5) Reporting Checklist and Instructions; (6) Budget Information; (7) National Policy Assurances; (8) Applicable regulations, if any; (9) Application as approved by DOE; and (10) DOE assistance regulations at 10 CFR part 600.

For grants made to universities, non-profits and other entities subject to OMB Circular A-110, the Award also includes the Research Terms and Conditions and the DOE Agency Specific Requirements located at: <http://www.nsf.gov/bfa/dias/policy/rtc/index.jsp>.

B. Administrative Requirements, National Policy Requirements, and Applicant Representations and Certifications

1. Administrative Requirements

The administrative requirements for DOE grants and cooperative agreements are contained in Title 10 CFR Part 600 (See: *10 CFR 600*). Grants and cooperative agreements made to universities, non-profits and other entities subject to Title 10 CFR Part 600 are subject to the Research Terms and Conditions located on the National Science Foundation web site at: <http://www.nsf.gov/bfa/dias/policy/rtc/index.jsp>.

2. DUNS and SAM Requirements

Additional administrative requirements for DOE grants and cooperative agreements are contained in 2 CFR, Part 25 (See: <http://ecfr.gpoaccess.gov>). Prime awardees must keep their data at the System for Award Management (SAM) current at <https://www.sam.gov>. SAM is the government-wide system that replaced the CCR. If you had an active registration in the CCR, you have an active registration in SAM. Subawardees at all tiers must obtain DUNS numbers and provide the DUNS to the prime awardee before the subaward can be issued.

3. 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. (See: <http://ecfr.gpoaccess.gov>). Prime awardees must register with the new FSRs database and report the required data on their first tier subawardees. Prime awardees must report the executive compensation for their own executives as part of their registration profile in the System for Award Management (SAM).

4. Special Terms and Conditions, National Policy Requirements, and Applicant Representations and Certifications

The EERE Special Terms and Conditions for Use in Most Grants and Cooperative Agreements are located at: <http://energy.gov/management/office-management/operational-management/financial-assistance/financial-assistance-forms>.

The National Policy Assurances To Be Incorporated as Award Terms are located at: <http://energy.gov/management/office-management/operational-management/financial->

Applicant Representations and Certifications

Corporate Felony Conviction and Federal Tax Liability Representations (March 2012)

By submitting an application in response to this FOA the Applicant represents that:

- (1) It is **not** a corporation that has been convicted (or had an officer or agent of such corporation acting on behalf of the corporation convicted) of a felony criminal violation under any Federal law within the preceding 24 months,
- (2) **No** officer or agent of the corporation have been convicted of a felony criminal violation for an offence arising out of actions for or on behalf of the corporation under Federal law in the past 24 months,
- (3) 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 the following definitions apply:

A Corporation includes any 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]. It includes both for-profit and non-profit organizations.

5. Subject Invention Utilization Reporting

To ensure that Recipients and Subrecipients holding title to subject inventions are taking the appropriate steps to commercialize subject inventions, EERE may require Recipients to submit annual reports (throughout the project period and for the duration of U.S. patents resulting from the EERE project) on the utilization of subject inventions and efforts made by Recipients 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 Recipient, and such other data and information as EERE may specify.

6. Intellectual Property Provisions

The standard DOE financial assistance intellectual property provisions applicable to the various types of recipients are located at <http://energy.gov/management/office-management/operational-management/financial-assistance/financial-assistance-forms>

7. Subcontracts and Agreements with DOE National Laboratories

Please be advised that those entities that form teams with DOE National Laboratories in which

the Laboratory is a Prime Recipient (i.e., lead participant) will be required to enter into subcontracts or agreements with the Laboratory. As such, the terms and conditions of the Management and Operating contract between the Laboratory and the Department of Energy will be in effect for any subcontracts and agreements, and not the traditional provisions associated with a financial assistance award. National Laboratories acting as Prime Recipients must make all applicable terms and conditions available to their potential subcontractors or potential parties to an agreement prior to submission of their applications. Any entities considering such teaming arrangements should request the Laboratory to provide the applicable terms and conditions prior to the Prime Recipient submitting a response to this FOA.

C. Reporting

Reporting requirements are identified on the Federal Assistance Reporting Checklist, DOE F 4600.2, attached to the award agreement.

D. Intellectual Property Management Plan

Each application must include a draft IP Management Plan that will form the basis of the final IP Management Plan between the members of the consortia or team. The Project Team must submit the final and executed Intellectual Property Management plan to EERE within six weeks of the effective date of the EERE funding agreement

The award will set forth the treatment of and obligations related to intellectual property rights between EERE and the individual members. The IP Management Plan should describe how the members will handle intellectual property rights and issues between themselves while ensuring compliance with Federal IP laws, regulations, and policies. (See Section VIII of this FOA for more details on applicable Federal IP laws and regulations.)

The following is a non-exhaustive list of examples of things that the IP Management Plan may cover:

- The treatment of confidential information between members (*e.g.*, the use of non-disclosure agreements);
- The treatment of background IP (*e.g.*, any requirements for identifying it or making it available);
- The treatment of inventions made under the project (*e.g.*, any requirements for disclosing to the other members, filing patent applications, paying for patent prosecution, and cross-licensing or other licensing arrangements between the members);
- The treatment of data produced, including software, under the project (*e.g.*, any publication process or other dissemination strategies, copyrighting strategy or arrangement between members);
- Any technology transfer and commercialization requirements or arrangements between the members;
- The treatment of any intellectual property issues that may arise due to a change in membership of the consortia or team; and
- The handling of disputes related to intellectual property between the members.

SECTION 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 as described below. Specifically, questions regarding the content of this FOA must be submitted to: SPAFOA848@go.doe.gov not later than 3 business days prior to the application due date.

All questions and answers related to this FOA will be posted on EERE Exchange at: <https://eere-Exchange.energy.gov/>. Please note that you must first select this specific FOA Number in order to view the questions and answers specific to this FOA. EERE will attempt to respond to a question within 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

SECTION VIII - OTHER INFORMATION

A. Amendments

Amendments to this announcement will be posted on the EERE eXCHANGE web site and the Grants.gov system. However, you will only receive an email when an amendment or an announcement is posted on these sites if you register for email notifications for this FOA in Grants.gov. DOE 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 announcements.

B. Government Right to Reject or Negotiate

DOE reserves the right, without qualification, to reject any or all applications received in response to this announcement 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 other than the Contracting Officer, either explicit or implied, is invalid.

D. Proprietary Application Information

DOE will use data and other information contained in applications strictly for evaluation purposes. Applicants should not include confidential, proprietary, or privileged information in their applications unless such information is necessary to convey an understanding of the proposed project.

Applications containing confidential, proprietary, or privileged information 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 U.S. Government is not liable for the disclosure or use of unmarked information, and may use or disclose such information for any purpose.

The cover sheet of the application must be marked as follows and identify the specific pages containing confidential, proprietary, or privileged information:

Notice of Restriction on Disclosure and Use of Data:

Pages *[list applicable pages]* of this document may contain confidential, proprietary, or privileged 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 or loan 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.

The header and footer of every page that contains confidential, proprietary, or privileged information must be marked as follows: “Contains Confidential, Proprietary, or Privileged Information Exempt from Public Disclosure.”

In addition, every line and paragraph containing proprietary, privileged, or trade secret information must be clearly marked with double brackets or highlighting.

E. Evaluation and Administration by Non-Federal Personnel

In conducting the merit review evaluation, 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. The applicant, by submitting its application, consents to the use of non-Federal reviewers/administrators. Non-Federal reviewers must sign conflict of interest and non-disclosure agreements prior to reviewing an application. Non-Federal personnel conducting administrative activities must sign a non-disclosure agreement.

F. Intellectual Property Developed under this FOA

Patent Rights. The government will have certain statutory rights in an invention that is conceived or first actually reduced to practice under a DOE award. 42 U.S.C. 5908 provides that title to such inventions vests in the United States, except where 35 U.S.C. 202 provides otherwise for nonprofit organizations or small business firms. However, the Secretary of Energy may waive all or any part of the rights of the United States subject to certain conditions. (See “Notice of Right to Request Patent Waiver” in paragraph G below.)

Rights in Technical Data. Normally, the government has unlimited rights in technical data created under a DOE agreement. Delivery or third party licensing of proprietary software or data developed solely at private expense will not normally be required except as specifically negotiated in a particular agreement to satisfy DOE’s own needs or to ensure the commercialization of technology developed under a DOE agreement.

Special Protected Data Statutes. This is covered by a special protected data statute. The provisions of the statute provide for the protection from public disclosure, for a period of up to five (5) years from the date of its development, of first-produced data that would be trade secret, or commercial or financial information that is privileged or confidential, if the information had been obtained from a non-Federal party. Generally, the provision entitled, Rights in Data – Programs Covered Under Special Protected Data Statutes, (10 CFR 600 Appendix A to Subpart D), will apply to an award made under this announcement. This provision will identify data or categories of data first produced in the performance of the award that will be made available to the public, notwithstanding the statutory authority to withhold data from public dissemination, and may also identify data that will be recognized by the parties as protected data. For National Laboratories and FFRDCs, the data rights clause in Applicant’s Management and Operating (M&O) Contract will apply.

G. Notice of Right to Request Patent Waiver

Applicants may request a waiver of all or any part of the rights of the United States in inventions conceived or first actually reduced to practice in performance of an agreement as a result of this announcement, in advance of or within 30 days after the effective date of the award. Even if such advance waiver is not requested or the request is denied, the recipient will have a continuing right under the award to request a waiver of the rights of the United States in identified inventions, i.e., individual inventions conceived or first actually reduced to practice in performance of the award. Any patent waiver that may be granted is subject to certain terms and conditions in 10 CFR 784.

Domestic small businesses and domestic nonprofit organizations will receive the patent rights clause at 37 CFR 401.14, i.e., the implementation of the Bayh-Dole Act. This clause permits domestic small business and domestic nonprofit organizations to retain title to subject inventions. Therefore, small businesses and nonprofit organizations do not need to request a waiver.

H. 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.

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

DOE 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).

J. Notice of Potential Disclosure under Freedom of Information Act

Applicants should be advised that identifying information regarding all applicants, including applicant names and/or points of contact, may be subject to public disclosure under the Freedom of Information Act, whether or not such applicants are selected for negotiation of award.

K. Lobbying Restrictions

By accepting funds under this award, you agree 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.

REFERENCE MATERIAL

APPENDIX A - DEFINITIONS

Quick Reference

“Marine and Hydrokinetic technologies” – A subset of Renewable Energy technologies that harness the energy from waves and from tidal, river, and ocean currents. Note that for the purposes of this FOA, current energy conversion technologies that use a dam, diversionary structure, or impoundment for electrical power purposes are not considered Marine and Hydrokinetic technologies.

“Capacity factor” – The ratio of the actual power produced at a site assuming 100% availability, to the power that would have been produced by the device if operating at rated capacity, over a given time (typically one year).

“Impact analysis” – A study 1) detailing expected impacts of the component technology development to the targeted MHK system’s performance as it relates to the System Performance Advancement Goals set in the application, and 2) quantifying the reduction in levelized cost of energy of the device that results from meeting their target System Performance Advancement Goal(s)

“Mean Time Between Failures” – The average of the elapsed time between inherent failures of during component operation.

“Mean Time To Repair” – The average time to repair a failed component.

“Rated capacity” – The expected power that the system is designed to produce.

“Service Life” - A system's service life is its expected lifetime, or the acceptable period over which the system will be considered in service.

“System integration plan” – Describes the path forward to address interface requirements such as design and performance specifications, system layout and design drawings, and any other information relevant to insuring the functionality of the component within a complete MHK system

“Technology readiness” – Development path that focuses on reducing the technical risk of MHK technologies and delivering robust products to the market

“Technology performance” – Development path to increase the cost competitiveness of MHK systems through a focus on improving fundamental device performance

General Definitions

“Amendment” means a revision to a Funding Opportunity Announcement

"**Applicant**" means the legal entity or individual signing the Application. This entity or individual may be one organization or a single entity representing a group of organizations (such as a Consortium) that has chosen to submit a single Application in response to a Funding Opportunity Announcement.

"**Application**" means the documentation submitted in response to a Funding Opportunity Announcement.

"**Authorized Organization Representative (AOR)**" is the person with assigned privileges who is authorized to submit grant applications through Grants.gov on behalf of an organization. *The privileges are assigned by the organization's E-Business Point of Contact designated in the SAM.*

"**Award**" means the written documentation executed by a DOE Contracting Officer, after an Applicant is selected, which contains the negotiated terms and conditions for providing Financial Assistance to the Applicant. A Financial Assistance Award may be either a Grant or a Cooperative Agreement.

"**Budget**" means the cost expenditure plan submitted in the Application, including both the DOE contribution and the Applicant Cost Share.

"**Consortium (plural consortia)**" means the group of organizations or individuals that have chosen to submit a single Application in response to a Funding Opportunity Announcement.

"**Contracting Officer**" means the DOE official authorized to execute Awards on behalf of DOE and who is responsible for the business management and non- aspects of the Financial Assistance process.

"**Cooperative Agreement**" means a Financial Assistance instrument used by DOE to transfer money or property when the principal purpose of the transaction is to accomplish a public purpose of support or stimulation authorized by Federal statute, and Substantial Involvement (see definition below) is anticipated between DOE and the Applicant during the performance of the contemplated activity. Refer to [10 CFR 600.5](#) for additional information regarding cooperative agreements.

"**Cost Sharing**" means the respective share of Total Project Costs to be contributed by the Applicant and by DOE. The percentage of Applicant Cost Share is to be applied to the Total Project Cost (i.e., the sum of Applicant plus DOE Cost Shares) rather than to the DOE contribution alone.

"**Data Universal Numbering System (DUNS) Number**" is a unique nine-character identification number issued by Dun and Bradstreet (D&B). Organizations must have a DUNS number prior to registering in the SAM. Call 1-866-705-5711 to receive one free of charge.

"**E-Business Point of Contact (POC)**" is the individual who is designated as the Electronic Business Point of Contact in the SAM registration. This person is the sole authority of the

organization with the capability of designating or revoking an individual's ability to conduct SAM transactions.

“E-Find” is a Grants.gov webpage where you can search for Federal Funding Opportunities in FedGrants. <http://www.grants.gov/search/searchHome.do>

“EERE Exchange” is the Department of Energy, Energy Efficiency and Renewable Energy's web system for posting Federal Funding Opportunity Announcements and receiving applications. [EERE eXCHANGE website](#)

"Financial Assistance" means the transfer of money or property to an Applicant or Participant to accomplish a public purpose of support authorized by Federal statute through Grants or Cooperative Agreements and sub-awards. For DOE, it does not include direct loans, loan guarantees, price guarantees, purchase agreements, Cooperative Research and Development Agreements (CRADAs), or any other type of financial incentive instrument.

“FedConnect” is where federal agencies make awards via the web. <https://www.fedconnect.net/FedConnect/>

“Federally Funded Research and Development Center (FFRDC)” means a research laboratory as defined by Federal Acquisition Regulation 35.017.

“Funding Opportunity Announcement (FOA)” is a publicly available document by which a Federal agency makes known its intentions to award discretionary grants or cooperative agreements, usually as a result of competition for funds. Funding opportunity announcements may be known as announcements, notices of funding availability, solicitations, or other names depending on the agency and type of program.

"Grant" means a Financial Assistance instrument used by DOE to transfer money or property when the principal purpose of the transaction is to accomplish a public purpose of support or stimulation authorized by Federal statute, and no Substantial Involvement is anticipated between DOE and the Applicant during the performance of the contemplated activity.

“Grants.gov” is the “storefront” web portal which allows organizations to electronically find grant opportunities from all Federal grant-making agencies. Grants.gov is THE single access point for over 900 grant programs offered by the 26 Federal grant-making agencies. <http://www.grants.gov>

“Indian Tribe” means any Indian tribe, band, nation, or other organized group or community, including Alaska Native village or regional or village corporation, as defined in or established pursuant to the Alaska Native Claims Settlement Act (85 Stat. 688) [43 U.S.C. § 1601 et seq.], which are recognized as eligible for the special programs and services provided by the United States to Indians because of their status as Indians.

"Key Personnel" mean the individuals who will have significant roles in planning and implementing the proposed Project on the part of the Applicant and Participants, including FFRDCs.

“Marketing Partner Identification Number (MPIN)” is a very important password designated by your organization when registering in SAM. The E-Business Point of Contact will need the MPIN to assign privileges to the individual(s) authorized to perform SAM transactions on behalf of your organization. The MPIN must have 9 digits containing at least one alpha character (must be in capital letters) and one number (no spaces or special characters permitted).

"Participant" for purposes of this Funding Opportunity Announcement only, means any entity, except the Applicant substantially involved in a Consortium, or other business arrangement (including all parties to the Application at any tier), responding to the Funding Opportunity Announcement.

“Principal Investigator” refers to the technical point of contact/Project Manager for a specific project award.

"Project" means the set of activities described in an Application, State plan, or other document that is approved by DOE for Financial Assistance (whether such Financial Assistance represents all or only a portion of the support necessary to carry out those activities).

“Proposal” is the term used to describe the documentation submitted in response to a Funding Opportunity Announcement. Also see Application.

“Recipient” means the organization, individual, or other entity that receives a Financial Assistance Award from DOE, is financially accountable for the use of any DOE funds or property provided for the performance of the Project, and is legally responsible for carrying out the terms and condition of the award.

“System for Award Management (SAM)” is the primary database which collects, validates, stores and disseminates data in support of agency missions (<https://www.sam.gov>).

"Selection" means the determination by the DOE Selection Official that negotiations take place for certain Projects with the intent of awarding a Financial Assistance instrument.

"Selection Official" means the DOE official designated to select Applications for negotiation toward Award under a subject Funding Opportunity Announcement.

"Substantial Involvement" means involvement on the part of the Government. DOE's involvement may include shared responsibility for the performance of the Project; providing technical assistance or guidance which the Applicant is to follow; and the right to intervene in the conduct or performance of the Project. Such involvement will be negotiated with each Applicant prior to signing any agreement.

“Technology Investment Agreement (TIA)” is a type of assistance instrument used to support or stimulate research projects involving for-profit firms, especially commercial firms that do business primarily in the commercial marketplace. TIAs are different from grants and cooperative agreements in that the award terms may vary from the Government-wide standard terms (See DOE

TIA regulations at 10 CFR Part 603). The primary purposes for including a TIA in the type of available award instruments are to encourage non-traditional Government contractors to participate in an R&D and to facilitate new relationships and business practices. A TIA can be particularly useful for awards to consortia (See 10 CFR 603.225(b) and 603.515, Qualification of a consortium).

"Total Project Cost" means all the funds to complete the effort proposed by the Applicant, including DOE funds (including direct funding of any FFRDC) plus all other funds that will be committed by the Applicant as Cost Sharing.

"Tribal Energy Resource Development Organization or Group" means an "organization" of two or more entities, at least one of which is an Indian Tribe (see "Indian Tribe" above) that has the written consent of the governing bodies of all Indian Tribes participating in the organization to apply for a grant or loan, or other assistance under 25 U.S.C. § 3503.

APPENDIX B – PERSONALLY IDENTIFIABLE INFORMATION

In responding to this Announcement, Applicants must ensure that Protected Personally Identifiable Information (PII) is not included in the following documents: Project Abstract, Project Narrative, Biographical Sketches, Budget or Budget Justification. These documents will be used by the Merit Review Committee in the review process to evaluate each application. PII is defined by the Office of Management and Budget (OMB) and DOE as:

Any information about an individual maintained by an agency, including but not limited to, education, financial transactions, medical history, and criminal or employment history and information that can be used to distinguish or trace an individual's identity, such as their name, social security number, date and place of birth, mother's maiden name, biometric records, etc., including any other personal information that is linked or linkable to an individual.

This definition of PII can be further defined as: (1) Public PII and (2) Protected PII.

- a. **Public PII:** PII found in public sources such as telephone books, public websites, business cards, university listing, etc. Public PII includes first and last name, address, work telephone number, email address, home telephone number, and general education credentials.
- b. **Protected PII:** PII that requires enhanced protection. This information includes data that if compromised could cause harm to an individual such as identity theft.

Listed below are examples of Protected PII that Applicants must not include in the files listed above to be evaluated by the Merit Review Committee.

- Social Security Numbers in any form
- Place of Birth associated with an individual
- Date of Birth associated with an individual
- Mother's maiden name associated with an individual
- Biometric record associated with an individual
- Fingerprint
- Iris scan
- DNA
- Medical history information associated with an individual
- Medical conditions, including history of disease
- Metric information, e.g. weight, height, blood pressure
- Criminal history associated with an individual
- Employment history and other employment information associated with an individual
- Ratings
- Disciplinary actions
- Performance elements and standards (or work expectations) are PII when they are so intertwined with performance appraisals that their disclosure would reveal an individual's performance appraisal

- Financial information associated with an individual
- Credit card numbers
- Bank account numbers
- Security clearance history or related information (not including actual clearances held)

Listed below are examples of Public PII that Applicants may include in the files listed above to be evaluated by the Merit Review Committee:

- Phone numbers (work, home, cell)
- Street addresses (work and personal)
- Email addresses (work and personal)
- Digital pictures
- Medical information included in a health or safety report
- Employment information that is not PII even when associated with a name
- Resumes, unless they include a Social Security Number
- Present and past position titles and occupational series
- Present and past grades
- Present and past annual salary rates (including performance awards or bonuses, incentive awards, merit pay amount, Meritorious or Distinguished Executive Ranks, and allowances and differentials)
- Present and past duty stations and organization of assignment (includes room and phone numbers, organization designations, work email address, or other identifying information regarding buildings, room numbers, or places of employment)
- Position descriptions, identification of job elements, and those performance standards (but not actual performance appraisals) that the release of which would not interfere with law enforcement programs or severely inhibit agency effectiveness
- Security clearances held
- Written biographies (e.g. to be used in a describing a speaker)
- Academic credentials
- Schools attended
- Major or area of study
- Personal information stored by individuals about themselves on their assigned workstation or laptop unless it contains a Social Security Number

APPENDIX C – 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, 10 CFR Part 600, use both of the terms in the titles specific to regulations applicable to cost sharing. DOE almost always uses the term “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 Regulation, 10 CFR Part 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. 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%

See the sample cost share calculation for a blended cost share percentage below. **Keep in mind that FFRDC funding is DOE funding.**

What Qualifies For Cost Sharing

While it is not possible to explain what specifically qualifies for cost sharing in one or even a couple of 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 a DOE grant or cooperative agreement, then it is allowable as cost share. Conversely, if the cost is not allowable under the cost principles and not eligible for reimbursement, then 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:

- Institutions of Higher Education, Hospitals, and Other Nonprofit Organizations are found at 10 CFR 600.123;

- State and Local Governments are found at 10 CFR 600.224;
- For-profit Organizations are found at 10 CFR 600.313.

In addition to the regulations referenced above, other factors may also come into play such as timing of donations and length of the project period. For example, the value of ten 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, DOE 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, DOE generally does not allow pre-award costs prior to the signing of the Selection Statement by the DOE Selection Official.

Following is a link to the DOE Financial Assistance Regulations. You can click on the specific section for each Code of Federal Regulations reference mentioned above.

[DOE Financial Assistance Rules \(10 CFR 600\)](#)

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 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 .
- (3) They are necessary and reasonable for proper and efficient accomplishment of project or 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 costs principles in 48 CFR Part 31 in the Federal Acquisition Regulation, 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](#)

(b) *Other types of organizations.* Allowability of costs incurred by other types of organizations that may be subrecipients under a prime award is determined as follows:

(i) *Institutions of higher education.* Allowability is determined in accordance with: [2 CFR 220 Cost Principles for Educational Institutions](#)

(ii) *Other nonprofit organizations.* Allowability is determined in accordance with: [2 CFR 230 Cost Principles for Nonprofit Organizations](#)

(iii) *Hospitals.* Allowability is determined in accordance with the provisions of: [Title 45 Appendix E to Part 74—Principles for Determining Costs Applicable to Research and Development Under Grants and Contracts With Hospitals](#)

(iv) *Governmental organizations.* Allowability for State, local, or federally recognized Indian tribal government is determined in accordance with: [PART 225—Cost Principles for State, Local, and Indian Tribal Governments \(OMB Circular A–87\)](#)

(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 . 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.

**SAMPLE COST SHARE CALCULATION
FOR BLENDED COST SHARE PERCENTAGE**

The following example shows the math for calculating required cost share for a project with \$2,000,000 in Federal funds with four tasks requiring different Non-federal cost share percentages:

<u>Task</u>	<u>Proposed Federal Share</u>	<u>Required Federal Share %</u>	<u>Non-federal Cost Share %</u>
Task 1 (R&D)	\$1,000,000	80%	20%
Task 2 (R&D)	500,000	80%	20%
Task 3 (Demonstration)	400,000	50%	50%
Task 4 (Outreach)	<u>100,000</u>	100%	0%
	\$2,000,000		

Federal share (\$) divided by Federal share (%) = Task Cost

Each task must be calculated individually as follows:

Task 1

\$1,000,000 divided by 80% = \$1,250,000 (Task 1 Cost)

Task 1 Cost minus federal share = Non-federal share

\$1,250,000 - \$1,000,000 = **\$250,000 (Non-federal share)**

Task 2

\$500,000 divided 80% = \$625,000 (Task 2 Cost)

Task 2 Cost minus federal share = Non-federal share

\$625,000 - \$500,000 = **\$125,000 (Non-federal share)**

Task 3

\$400,000 / 50% = \$800,000 (Task 3 Cost)

Task 3 Cost minus federal share = Non-federal share

\$800,000 - \$400,000 = **\$400,000 (Non-federal share)**

Task 4

Federal share = \$100,000

Non-federal cost share is not mandated for outreach = **\$0 (Non-federal share)**

The calculation may then be completed as follows:

<u>Task</u>	<u>Proposed Federal Share</u>	<u>Federal Share %</u>	<u>Required Non-federal Cost Share \$</u>	<u>Required Non-federal Cost Share %</u>	<u>Total Project Cost</u>
Task 1	\$1,000,000	80%	\$250,000	20%	\$1,250,000
Task 2	500,000	80%	125,000	20%	625,000
Task 3	400,000	50%	400,000	50%	800,000
Task 4	<u>100,000</u>	100%	<u>0</u>	0%	<u>100,000</u>
	\$2,000,000		\$775,000		\$2,775,000

Blended Cost Share %

Non-federal share (\$775,000) divided by Total Project Cost (\$2,775,000) = 27.9% (Non-federal)

Federal share (\$2,000,000) divided by Total Project Cost (\$2,775,000) = 72.1% (Federal)