

**FINANCIAL ASSISTANCE
FUNDING OPPORTUNITY ANNOUNCEMENT**



**U.S. Department of Energy
Golden Field Office**

**Title: “Development of Methodologies for Determining Preferred
Landscape Designs for Sustainable Bioenergy Feedstock Production
Systems at a Watershed Scale”**

Funding Opportunity Announcement Number: DE-FOA-0000314

Announcement Type: Initial or Modification Number 000

CFDA Number: [81.087]

Issue Date: 06/02/2010
Letter of Intent Due Date: 06/22/2010
Pre-Application Due Date: N/A
Application Due Date: 07/16/2010, 11:59 PM Eastern Time

REGISTRATION AND APPLICATION SUBMISSION REQUIREMENTS

Registration Requirements: Allow at least 21 days to complete registrations.

To submit an application under this announcement, complete the following registrations:

1. Obtain a Dun and Bradstreet Data Universal Numbering System (DUNS) number, at <http://fedgov.dnb.com/webform>.
2. Register in the Central Contractor Registration (CCR) system, at <https://www.ccr.gov/>. Designating an E-Business Point of Contact (EBiz POC) and obtaining a special password called an MPIN are important steps in CCR registration. These items are needed to submit applications in Grants.gov. Update your CCR registration annually.
3. Register in Grants.gov at <http://www.grants.gov/>. See the Organization Registration User Guide at <http://www.grants.gov/assets/OrgRegUserGuide.pdf>. The Applicant User Guide is at <http://www07.grants.gov/assets/ApplicantUserGuide.pdf>.
4. Register in FedConnect at <https://www.fedconnect.net/>; use “Register as a Vendor” link. To create an organization account, your organization’s CCR MPIN is required.

Where to Download the Application Package:

Download the Application Package for this announcement at <http://www.grants.gov/>. Click on the “Apply for Grants” link; then, click on the “Download a Grant Application Package” link and follow the instructions. Insert the announcement number to download the Application Package.

Where to Submit the Application Package:

APPLICATIONS MUST BE SUBMITTED THROUGH GRANTS.GOV TO BE CONSIDERED FOR AWARD. Follow instructions in the User’s Guide for application submissions. Applicants are responsible for verifying successful transmission, prior to the Application due date and time.

Where to Ask Questions About the Funding Opportunity Announcement Content:

To ask questions about the Funding Opportunity Announcement, use FedConnect at <https://www.fedconnect.net/>. You must be a registered user in the system and submit questions by sending messages in your FedConnect email box. Part VII of this announcement explains how to submit questions to the Department of Energy (DOE).

Where to Submit Questions About the Registrations or Systems:

Dun & Bradstreet: govt@dnb.com

Central Contractor Registration (CCR) system: <https://www.bpn.gov/ccr/contactccr.aspx>
By phone: 866-606-8220 or 334-206-7828 (8:00 a.m. to 8:00 p.m., Eastern Time)

Grants.gov: support@grants.gov
By phone: 1-800-518-4726 (available 24 hours a day, 7 days a week, except Federal holidays)

FedConnect: support@FedConnect.net
By phone: 1-800-899-6665 (8:00 a.m. to 8:00 p.m., Eastern)

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SECTION I – FUNDING OPPORTUNITY DESCRIPTION

A. BACKGROUND

The U.S. Department of Energy (DOE), Office of Energy Efficiency and Renewable Energy (EERE), announces a Funding Opportunity Announcement (FOA) for financial assistance from the Office of the Biomass Program. DOE has funded technology development projects since FY 2002 to meet two of the EERE performance goals: 1) dramatically reduce or eliminate the United States' dependence on imported oil; and 2) spur the creation of the domestic bioindustry. This FOA also supports the same two performance goals.

Dramatic expansion of the domestic biofuels industry is needed to meet the requirements of the Energy Independence and Security Act of 2007 (EISA) Renewable Fuels Standard (RFS2; i.e., 36 billion gallons per year of biofuels from domestically produced feedstocks by 2022, including 21 billion gallons per year of advanced biofuels from cellulosic feedstocks). In order to displace 30 percent or more of the country's present petroleum consumption, approximately one billion dry tons of sustainably produced feedstocks would need to be produced each year. It is anticipated that the feedstock required to achieve the anticipated rapid expansion of the commercial domestic biofuels industry will come predominantly from dedicated energy crops. (Perlack, et al (2005); see http://feedstockreview.ornl.gov/pdf/billion_ton_vision.pdf).

On May 5, 2009, the Biofuels Interagency Working Group (BIWG) was established by President Obama to support the sustainable development of energy options. One of the President's key goals for this group was to "identify new policy options to promote the environmental sustainability of biofuels feedstock production, taking into consideration land use, habitat conservation, crop management practices, water efficiency and water quality, as well as lifecycle assessments of greenhouse gas emissions."

Biomass will play a significant role in a renewable energy future, especially for the production of liquid transportation fuels, as well as biopower and bioproducts. America's vast agricultural and forest lands have the potential of producing over a billion tons annually of a wide assortment of biomass feedstocks. Much will have to come from new energy crops, but all has to be grown sustainably without adverse impacts or long-term accumulative effects.

The lack of verifiable and reliable environmental data at the watershed scale for high-yielding energy crops and other feedstocks removed from the landscape to ascertain the sustainability of these production systems has been identified as a barrier to the development of a large and significant biofuel and biopower industry. Furthermore, there exists only limited information and few tools for implementing and managing sustainable high-yield energy crops across the landscape. There is little scientific information and no validated methodology for optimizing sustainable cellulosic biomass production systems beyond the plot and field scale onto the watershed and larger scale. These gaps have been identified in recent workshops focused on bioenergy and sustainability such as "Sustainability of Biofuels: Future Research Opportunities" (October, 2008) and "A Watershed Perspective on Bioenergy Sustainability" (February, 2010) ¹.

With the expected rapid growth of the bio-economy, the escalation of establishment and production of energy crops across the agricultural, forestry, and rural landscape will need to be

¹ Reports from these workshops can be found at: <http://genomicscience.energy.gov/biofuels/sustainability/> and <http://www.ornl.gov/sci/besd/cbes/Watershed/FinalReport.pdf>.

correspondingly rapid and must happen in parallel with the development of biorefineries. Special attention is therefore required to understand sustainability issues at the watershed level and to use this information for developing a model or a set of tools to help implement large-scale deployment of energy crops that ensure environmental sustainability, while optimizing system productivity and economic viability for producers, and provide high quality biomass for a variety of conversion processes.

DOE plans to support the increased production of large volumes of sustainably produced domestic biofuels from cellulosic feedstocks by seeking applications to better understand and quantify important environmental variables and their interactions at the watershed level. DOE plans to use this information and knowledge to help biomass producers optimize the production design and management of high-yield energy crops at the watershed and larger scales. The focus of this FOA will be on primary agricultural and silvicultural production systems for high-yielding, cellulosic energy crops as a single species, multiple species, or combinations of species on the same site (e.g., double-cropping). The watershed treatments should be representative of, or transferable to, future energy crops in the region (i.e., energy crops may cover the entire watershed with appropriate access, buffers, etc., or be interspersed within other agricultural and forestry production systems, or other land uses).

For the purpose of this FOA, energy crops are defined as fast-growing cellulosic crops that are cultivated for the specific purpose of producing energy (i.e., electricity or liquid transportation fuels) from all or part of the non-food portions of the plant. Dedicated energy crops are primarily perennials, including herbaceous grasses (e.g., switchgrass, energycane, miscanthus and mixed grasses) and woody crops (e.g., willows and hybrid poplars). However, non-food sorghum varieties, which are grown as annual crops, are also considered to be energy crops for purposes of this FOA. Only unprocessed agricultural and forestry residues (e.g., corn stover, wheat straw, rice straw, forest thinning, etc.) will be considered among the acceptable feedstocks for purposes of this FOA. **Algae, animal wastes, urban wastes, industrial wastes, and municipal solid wastes (MSW) are not acceptable feedstocks for purposes of this FOA.**

B. DESCRIPTION

The intent of this FOA is to quantify and better understand the relative impacts on the environment of different strategies for producing large quantities of intensively managed, high-yielding energy crops, and crop and forestry residues at the watershed scale. The nascent cellulosic biomass industry and its stakeholders require this information and knowledge for sustainable implementation of energy crop production systems at the watershed scale. For the purposes of this FOA, sustainability refers to the environmental, social, and economic considerations necessary to meet current bioenergy needs without inhibiting our ability to meet current and future needs for food, feed, fiber, water, bioenergy, biodiversity, etc. However, although sustainability encompasses these three elements, for purposes of this FOA we are most interested in filling gaps in our understanding of the interplay between environmental and economic considerations.

To achieve this goal, Applicants must first provide/design a framework/system for the evaluation and verification of sustainability at the watershed scale, preferably using ongoing or established empirical watershed studies and/or through the extrapolation or modeling of empirical data from similar studies that have previously met the high standards of a critical scientific peer review. One or both of these existing experimental resources are viewed as essential components of any successful application(s) responding to this FOA, which can only provide limited amounts of funding over a finite period of time.

Watershed scale studies include data collection, verification, analyses, and assimilation of environmental and ecological variables in response to the control and experimental production system(s) being evaluated. Generally, these variables include: (1) soil erosion and sediment loading; (2) water yield and quality; and (3) long-term site productivity². Within these major categories, there are many potential causes of environmental degradation and benefit, as well as additional important parameters that may be monitored (e.g., carbon fluxes). Watershed studies, with their clearly delineated areas, can also be used to evaluate an array of ecological functions such as biodiversity, soil conservation, evapotranspiration, carbon allocation, etc. In order to accomplish the objectives of this FOA, one or more of the following research objectives must be addressed at the watershed level:

- A sustainability assessment of a single species of energy crop;
- A sustainability assessment of multiple species of energy crops (which may include residues) within the watershed;
- A sustainability assessment of multiple species of energy crops (which may include residues) on the same site within the watershed;
- A sustainability assessment of energy crops interspersed within other agricultural and forestry production systems;
- A sustainability assessment of selected levels of intensity and management practices for selected energy crops (which may include residues).

In most watershed scale studies, hydrology is the major focal point and usually involves an instrumented infrastructure of flumes and encatchments to monitor the flow of surface water. Other methods are employed for quantifying ground water quantity and fluxes over time. Water samples are taken periodically to evaluate water quality and the amount and rate of off-site movement of fertilizers and pesticides. Successful applications may include these types of data collection and analysis but must also address sustainability criteria in addition to water quality and quantity.

Large-scale field studies, although very useful for quantifying parameters and testing limited hypotheses, are costly and very difficult to administer and manage, as they must be maintained and operated over fairly long periods of time. Geographic Information Systems (GIS) are used to facilitate the parameterization of hydrologic models and visualization of models at larger scales and to test specific ecological functions, and therefore, their use is encouraged. There are currently many models available that are designed for specific applications. An example is the Automated Geospatial Watershed Assessment (AGWA) tool for watershed modeling, developed jointly by the U.S. EPA Office of Research and Development, USDA Agricultural Research Service, and the University of Arizona³. AGWA uses a commonly used and scientifically validated watershed hydrologic model, called the Soil & Water Assessment Tool (SWAT)⁴.

DOE is seeking applications to address these important issues from a team of well qualified scientists with the background, experience, and physical resources required to

² Beasley, R.S. and A.B. Granillo. 1988. Sediment and water yields from managed forests on flat coastal plains sites. *Water Resources Bulletin* 24(3): 361-366.

See also, Black, P.E. 1996. *Watershed Hydrology* 2nd ed. CRC Press / Lewis Publishers. Boca Raton, FL.

³ Semmens, D.J., M. Hernandez, D. C. Goodrich, and W. G. Kepner, 2006, "Hydrologic model uncertainty associated with simulating future landcover/use scenarios: a retrospective analysis", in *Proceedings of the 2nd Interagency Conference on Research in the Watersheds*, May 16 – 18, 2006. Fowler, D.L., compiler. Coweeta Hydrologic Laboratory, Otto, NC, pp. 33-40. Available at <http://www.tucson.ars.ag.gov/agwa/> or <http://www.epa.gov/nerlesd1/landsci/agwa/>.

⁴ see <http://swatmodel.tamu.edu/>

conceptualize and execute critical, incisive studies aimed at the goals outlined here. The project team should include collaborators with the necessary skills to discover and adequately describe how to optimize the design of energy crop production systems at a watershed scale, with the goal of ensuring the environmental sustainability of the entire system. This may require collaboration among scientists and engineers with training in distinctly different disciplines. The appropriate set of researchers for the proposed project may also be employed at different institutions, so collaboration among different organizations is encouraged. Leveraging established successful collaborations will be favorably received, as it provides some evidence that the scientists involved have a productive collaborative track record.

This FOA requests that each application provide:

- 1) background ecological process and function data, analysis, and/or models that can serve as the basis for hypothesis, experimental design and testing, and validation of sustainable management strategies for selected cellulosic feedstock crops at the watershed level; and
- 2) watershed-specific information to develop a new or improved model and/or tools for deploying the selected feedstock crops in an environmentally sustainable, economically viable and socially acceptable manner within related landscapes of the geographic area.

The final products of the project must include, at a minimum:

- 1) a report detailing the experimental design, the data collection, and the conclusions reached during the course of the proposed work; *and*
- 2) a report or publication(s) detailing how to design and implement strategies for the sustainable production of selected energy crops and other cellulosic feedstock production systems at the watershed scale; *and*
- 3) a model or set of tools to assist in the sustainable implementation of energy crops and other cellulosic feedstock production systems at larger scales.

Due to the limited funding available and the limited period of performance anticipated for these awards, the availability of previously established, appropriately designed, mature experimental systems, data and/or computer models at a watershed scale would greatly facilitate progress toward achieving the goals of this FOA. It is required that at least one high-yield energy crop is evaluated in the proposed work, and it is highly preferred that a diversity of dedicated energy crops (woody and herbaceous) and traditional crop residues be incorporated into these experimental systems. Traditional crop residues may also be included, but should not be the main focus of the experimental system.

The Applicant may propose the establishment of new watershed studies to collect environmental, economic, and social data, but preference will be given to applications that have unencumbered access to established watershed scale field experiments and/or peer-reviewed background data, and can thereby greatly accelerate the development of the design and implementation of other new sustainable feedstock production systems at a watershed scale. Therefore, the extrapolation and use of existing data, models, and experimental field sites will be given strong preference over the establishment of new experimental field sites at a watershed scale.

The anticipated outputs from the proposed project should show clear promise of utility across a broadly defined region of the United States, because the intention of this FOA is to help generate and publicly disseminate an improved understanding of sustainability of selected high-yield energy crops at the watershed scale. Selected projects must therefore provide data, information, expertise, and validated methodologies and/or tools to enable the rapid and relatively inexpensive assessment of a different system within the same region or other regions of the United States to meet anticipated future demands for energy feedstocks.

C. LEGISLATIVE AUTHORITY

Energy Policy Act of 2005

This announcement is being issued under authorization of the Energy Policy Act of 2005 (EPAct 2005), Section 932. The acceptable feedstocks in this FOA are expected to contribute to the goal of producing 21 billion gallons of advanced biofuels from cellulosic feedstocks by 2022 (Energy Independence and Security Act of 2007 (Title II, Section 202)).

While federal policies fostering ethanol production have been in place for more than two decades⁵, these were renewed and strengthened by EPAct 2005, Section 932(d), in which the Secretary is directed to "...encourage the demonstration of a wide variety of lignocellulosic feedstocks and the demonstration of the collection and treatment of a variety of biomass feedstocks."

Energy Independence and Security Act of 2007

Section 202 of the Energy Independence and Security Act 2007 (EISA 2007), mandates the production of 36 billion gallons of biofuels by 2022 under the Renewable Fuel Standard.

SECTION II – AWARD INFORMATION

A. Type of Award Instrument

- DOE anticipates awarding grants under this funding opportunity announcement.

B. Estimated Funding

- Approximately \$ 5,000,000 is expected to be available for new awards under this announcement.
- Approximately \$ 3,000,000 is expected to be available for new awards in FY 2010.
- The actual level of funding for this program, \$ 3,000,000, has been appropriated, with the remainder (\$ 2,000,000) anticipated in out-years. All awards are subject to the availability of funding.

C. Maximum and Minimum Award Size

- Ceiling (i.e., the maximum amount for an individual award made under this announcement): \$ 5,000,000.
- Floor (i.e., the minimum amount for an individual award made under this announcement): \$ 500,000.

⁵ *Biofuels – At What Cost? Government support for ethanol and biodiesel in the United States*. Earth Track, Inc. for Global Subsidies Initiative of the International Institute for Sustainable Development. October 2006. www.globalsubsidies.org.

D. Expected Number of Awards

- DOE anticipates making 1-5 awards under this announcement, depending on the size of the awards.

E. Anticipated Award Size

- DOE anticipates that awards will be in the \$ 500,000 to \$ 5,000,000 range for the total project period.
- DOE expects to fund up to \$ 1,000,000 per year for up to 5 years. If requested annual levels are higher, applicants must justify the need for more funds in their application, consistent with the ceiling on individual awards described in paragraph C above.

F. Period of Performance

- DOE anticipates making awards that will run for up to 5 years.

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).

SECTION III - ELIGIBILITY INFORMATION

A. Eligible Applicants

All domestic entities are eligible to apply for this FOA, except nonprofit organizations described in section 501(c)(4) of the Internal Revenue Code of 1986 that engaged in lobbying activities after December 31, 1995.

Any DOE/National Nuclear Security Administration (NNSA) FFRDC contractor applying as the prime cannot exclusively withhold its services to only its application and must make itself available to other applicants on a non-exclusive basis.

B. Cost Sharing

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

C. Other Eligibility Requirements for Federally Funded Research and Development Centers (FFRDC)

FFRDCs may be proposed as team members on another entity's application, or as the lead organization for the application, subject to the following guidelines:

Authorization for non-DOE FFRDCs. A Non-DOE FFRDC is eligible for funding as a prime applicant or a subcontractor on another entity's application. If a non-DOE FFRDC is selected for award, the proposed work will be authorized through an Interagency Agreement. 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 FFRDC's authority under its award. 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 assigned programs at the laboratory, and will not place the laboratory in impermissible competition with the domestic private sector. This laboratory is authorized to perform the work proposed in the application submitted under DOE Funding Opportunity Announcement # DE-FOA-0000314 by the following statutory authority [insert Statute name, citation, and section].”

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, and will not place the laboratory in direct competition with the domestic private sector.”

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 application system and other FFRDC contractors through an interagency agreement with the sponsoring agency.

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.

FFRDC Contractor Effort. The FFRDC contractor effort, in aggregate, shall not exceed 100% of the total estimated cost of the project, including the applicant’s and the FFRDC contractor’s portions of the effort. The FFRDC contractor may serve as the lead organization for the project.

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.

SECTION IV – APPLICATION AND SUBMISSION INFORMATION

A. Address to Request Application Forms

Application forms and instructions are available at Grants.gov. To access these materials, go to <http://www.grants.gov>, select “Apply for Grants,” and then select “Download Application Package.” Enter the CFDA and/or the Funding Opportunity Number located on the cover of this announcement and then follow the prompts to download the application package. (Also see Section H of this Part below.)

B. Notice of Intent and Pre-Application

1. Notice of Intent to Apply

APPLICANTS ARE REQUESTED TO SUBMIT A NOTICE OF INTENT TO APPLY BY EMAIL TO: FEEDSTOCKSUSTAINABIL@GO.DOE.GOV NO LATER THAN JUNE 22, 2010, 11:59 PM EASTERN TIME.

Notices of Intent to Apply will aid DOE in planning for the Merit Review process and help to expedite the review and selection process. Notices of Intent to Apply should be submitted by email to the address above and contain only the following information:

Applicant name (i.e., lead institution);
Project title;
Project Director (i.e., PI); and
Other key personnel and their organizational affiliations.

2. Pre-application – A pre-application is NOT required for this FOA.

C. Content and Form of Application

You must complete the mandatory forms and any applicable optional forms, in accordance with the instructions on the forms and the additional instructions below, as required by this FOA. **Files that are attached to the forms must be in Adobe Portable Document Format (PDF) unless otherwise specified in this announcement.**

Once the forms below have been completed, save the Application Package in a single file, using up to 10 letters of the Applicant's Organization Name as the file name (e.g., Company). If your organization is submitting more than one Application, you must identify an application number at the end of each file name (e.g., Company-1).

1. SF 424 - Application for Federal Assistance

Complete this form *first* to populate data in other forms. Complete all required fields in accordance with the instructions on the form. The list of certifications and assurances referenced in Field 21 can be found under Certifications and Assurances at http://management.energy.gov/business_doe/business_forms.htm.

2. Project/Performance Site Location(s)

Indicate the primary site where the work will be performed. If a portion of the project will be performed at any other site(s), identify the site location(s) in the blocks provided. **Note that the Project/Performance Site Congressional District is entered in the format of the 2 digit state code followed by a dash and a 3 digit Congressional district code; for example, VA-001.** When completing this form, hover over the Congressional District field for additional instructions.

Use the "Next Site" button to expand the form to add additional Project/Performance Site Locations.

3. Other Attachments Form

Submit the following files with your application and attach them to the Other Attachments Form. Click on "Add Mandatory Other Attachment" to attach the Project Narrative. Click on "Add Optional Other Attachment," to attach the other files.

a. 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. 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 this information in a file named "Summary.pdf," and click on "Add Optional Other Attachment" to attach.

b. Project Narrative File - Mandatory Other Attachment

The project narrative must not exceed **25 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. The font size must not be smaller than 11 point.

EVALUATORS WILL REVIEW ONLY THE NUMBER OF PAGES SPECIFIED IN THE PRECEDING SENTENCE. 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 file named “Project.pdf,” and click on “Add Mandatory Other Attachment” to attach.

The project narrative must include:

- Project Objectives
This section should provide a clear, concise statement of the specific objectives/aims of the proposed project, a credible plan directed at achieving them, as well as measurable milestones and deliverables expected to be achieved at various stages during the period of performance. Progress towards goals, objectives, milestone and deliverables will be the subject of at least one peer review meeting during the project Period of Performance.
- Merit Review Criterion Discussion
This section should be formatted to address each of the merit review criteria and sub-criteria 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 WILL CONSIDER ONLY THOSE APPLICATIONS THAT ADDRESS SEPARATELY EACH MERIT REVIEW CRITERION AND SUB-CRITERION.**
- Project Timetable
This section should outline as a function of time, year by year, all the important activities or phases of the project, including any activities planned beyond the project period. Successful applicants will be required to use this project timetable against which to report their progress in the project. Planned peer review meeting(s) should be noted in the timetable.
- Relevance and Outcomes/Impacts
This section should explain the relevance of the effort to the objectives in the program announcement and the expected outcomes and/or impacts. The justification for the proposed project should include a clear statement of the importance of the project in terms of the utility of the outcomes and the target community of beneficiaries.
- Roles of Participants
For multi-organizational or multi-investigator projects, describe the roles, responsibilities and the activities to be performed by each key participant/investigator, any business agreements (either existing or anticipated) among two or more of the project participants, and how the various efforts will be integrated and managed effectively.

- Facilities and Other Resources
Identify the facilities (e.g., office, laboratory, computer, specialized software, research plots, 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, chemical analysis labs, etc.
- Equipment
List important items of equipment already available for this project and 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.
- Bibliography and References, if applicable
Provide a bibliography for any references cited in the Project Narrative section. This section must include only bibliographic citations. *The bibliography will not be included in the total page count for the application.*

All the components of your Project Narrative (listed above, and with the exception of a bibliography) must be within the Narrative page limit specified in paragraph b., above. 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.

c. Resume File

Provide a resume for each key person proposed, including subawardees and consultants if they meet the definition of key person. A key person is any individual who contributes in a substantive, measurable way to the execution of the project. Save all resumes in a single file named “resume.pdf” and click on “Add Optional Other Attachment” to attach. 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 following information, if applicable:

Education and Training. Undergraduate, graduate and postdoctoral training; provide institution, major/area, degree and year the degree was conferred.

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

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. Please do not attach electronic copies of articles listed.

Patents, copyrights and software systems developed may be provided in lieu of one or more 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, clearly indicate the Principal Investigator(s) (PI).
- 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 *a single* 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, but each individual’s resume should be no longer than 2 pages in length, including publications.

d. 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 accumulative 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://management.energy.gov/business_doe/business_forms.htm.

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 file named “SF424A.xls,” and click on “Add Optional Other Attachment” to attach.

e. Budget Justification File

You must justify the costs proposed in each Object Class Category/Cost Classification category (e.g., identify key persons and personnel categories and the estimated costs for each person or category; provide a list of equipment needed and the cost of each item; identify proposed subaward/consultant work and cost of each; describe the destination and purpose of proposed travel, the number of travelers per trip and number of travel days per trip; list general categories of supplies and amount for each category; and provide any other information you wish to support your budget). Provide the name of your cognizant/oversight agency, if you have one, and the name and phone number of the individual responsible for negotiating your

indirect rates.

Save the budget justification information in a single file named “Budget.pdf,” and click on “Add Optional Other Attachment” to attach.

f. Letters of Commitment

Since a cost share is required for these awards, you must supply 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. **All Letters of Commitment must be attached as an Appendix to the Project Narrative File.** 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 Appendix to the Narrative. Letters of Commitment will not count towards the Project Narrative page limit.

g. Subaward Budget File(s)

Use the SF 424 A Excel for Non-Construction Programs or the SF 424 C Excel for Construction Programs. These forms are found on the DOE Financial Assistance Forms Page at http://management.energy.gov/business_doe/business_forms.htm. Save each Subaward budget in a separate file. Use up to 10 letters of the subawardee’s name (plus 424.xls) as the file name (e.g., company424.xls or energyres424.xls). Click on “Add Optional Other Attachment” to attach each file. All dollar amounts listed in this sub-section are inclusive of cost share.

1. Corporate or nonprofit Subawardees

You must provide a separate budget (i.e., budget for each budget year and a cumulative budget) for each **corporate or nonprofit 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).

2. University, State, and Local Government Subawardees

You must also provide a separate budget (i.e., budget for each budget year and a cumulative budget) for each **University, State, and Local Government 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).

A budget justification for each subaward budget is also required. The budget justification must include the same justification information described in paragraph d., above.

h. 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 in accordance with the requirements in DOE Order 412.1 Work Authorization System. The DOE Order 412.1, Work Authorization System and the DOE Order 412.1, Field Work Proposal form are available at the following link, under “DOE Budget Forms” (see http://management.energy.gov/business_doe/business_forms.htm).

Use up to 10 letters of the FFRDC name (plus .pdf) as the file name (e.g., lanl.pdf or anl.pdf), and click on “Add Optional Other Attachment” to attach.

i. 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 file named “FFRDC_Auth.pdf” and click on “Add Optional Other Attachment”

j. SF-LLL Disclosure of Lobbying Activities

If applicable, complete 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.” The form is available in the optional document box on the Adobe Application Package attached to this FOA.

Summary of Required Forms/Files

Your application must include the following documents:

Name of Document	Required File Format	Preferred File Name
SF 424 - Application for Federal Assistance	Part of Adobe Application Package	
Project/Performance Site Location(s)	Part of Adobe Application Package	
Other Attachments Form: Attach the following files to this form:	Part of Adobe Application Package	See Instructions
Project Summary/Abstract File	PDF	Summary.pdf
Project Narrative File, including required appendices	PDF	Project.pdf
Resume File	PDF	Resume.pdf
Letters of Support	PDF	Letters.pdf
SF 424A Excel – Budget Information		

for Non-Construction Programs File	Excel	SF424A.xls
Budget Justification File	PDF	See Instructions
Subaward Budget File(s) for each subawardee, if applicable Budget Justification(s), if applicable	Excel for Budget PDF for Justification	See Instructions
Budget files for each participating Federally Funded Research and Development Center (FFRDC) Contractor File, if applicable	Excel for Budget PDF for Justification	See Instructions
Authorization from cognizant Contracting Officer for each participating FFRDC, if applicable	PDF	FFRDC_Auth.pdf
SF-LLL Disclosure of Lobbying Activities, if applicable	PDF	SF-LLL.pdf

D. Submissions from Successful Applicants

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
- Environmental Questionnaire

E. Submission Dates and Times

1. Letter of Intent

Letter of Intent Due Date: June 22, 2010, 11:59 PM (Eastern)

2. Pre-application Due Date

Pre-applications Are Not Required

3. Application Due Date

Applications must be received by July 16, 2010, 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 10 CFR Part 600. The cost principles for commercial organizations are in FAR Part 31.

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, if the costs are allowable in accordance with the applicable Federal cost principles referenced in 10 CFR part 600. Recipients must obtain the prior written approval of the DOE 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

APPLICATIONS MUST BE SUBMITTED THROUGH GRANTS.GOV, TO BE CONSIDERED FOR AWARD UNDER THIS ANNOUNCEMENT. You cannot submit an application through Grants.gov unless you are registered as a user at that site. **Please read the registration requirements below carefully and start the process immediately.** Submit electronic applications through the “Apply for Grants” function at WWW.GRANTS.GOV.

If you have problems completing the registration process or submitting your application, call Grants.gov at 1-800-518-4726 (7:00 a.m. to 9:00 p.m., Eastern) or send an email to support@grants.gov. It is the responsibility of the applicant to verify successful transmission, prior to the Application due date and time.

2. Registration Process Requirements

To submit an application in response to this FOA, Applicants must be registered with Grants.gov. Register in Grants.gov at <http://www.grants.gov/>. See the Organization Registration User Guide at <http://www.grants.gov/assets/OrgRegUserGuide.pdf>. The Applicant User Guide is at <http://www07.grants.gov/assets/ApplicantUserGuide.pdf>. **Allow at least 21 days to complete all registration requirements.**

Before you can register with Grants.gov, you will need the following:

- a. Your organization’s Dun and Bradstreet Data Universal Numbering System (DUNS) (including plus 4 extension if applicable). To check whether your organization has a DUNS or if your organization requires a DUNS, search for the number or request one at <http://fedgov.dnb.com/webform/displayHomePage.do>.
- b. A federal Central Contractor Registration (CCR) account. If your organization is not currently registered with CCR, please register at www.ccr.gov before continuing with your Grants.gov registration. Designating an Electronic Business Point of Contact (EBiz POC) and obtaining a special password called an MPIN are important steps in CCR registration. These items are needed to submit applications in Grants.gov. **Update your CCR registration annually.**
- c. Registration in FedConnect at <https://www.fedconnect.net/>; use “Register as a Vendor” link. To create an organization account, your organization’s CCR MPIN is required; obtain the MPIN from your organization’s Electronic Business Point of Contact. Refer to the FedConnect Quick Start guide at the website.

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 Grants.gov and FedConnect, 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. Criteria

1. Initial Review Criteria

Application Award Eligibility

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

2. Merit Review Criteria

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

Criterion 1: Technical Merit

Weight: [45%]

The quality and extent to which the application demonstrates the technical merit and rationale for the proposed project. The extent to which the technical description of the proposed project adequately presents and justifies that the proposed project addresses the following technical focus areas and priorities:

- Watershed scale – An in-depth understanding of how to design and implement sustainable bioenergy crop production systems at watershed and landscape scales is essential to create a sustainable bioenergy industry. The proposed experimental design must address energy crop production systems at a watershed scale.
- Environmental sustainability — in particular, the accurate and reliable estimation of environmental benefits and impacts in the context of ensuring both value chain profitability and public acceptance. Environmental variables of particular importance, among others, include:
 - Soil conservation and quality (including soil carbon and soil organic matter)
 - Water conservation and quality including fertilizer and pesticide use and runoff into waterways and underground aquifers;
 - Local greenhouse gas emissions/sequestration and climate implications;
 - Nutrient use and accounting (including phosphorous, nitrogen, and potassium)
 - Impacts on native flora and fauna and other ecosystem characteristics and functions;
 - High energy crop yields with minimal inputs and good economic returns

- to the producer; and
 - Balancing the needs of the ecosystem with those of society
- The extent to which a plan is presented to elucidate the dominant sustainability issues and variables in the context of the planned field experiments.
- Diversity of cellulosic biomass crops/agricultural residues – It is required that at least one high-yield energy crop be evaluated, and highly preferred that a diversity of energy crops (woody and herbaceous) are incorporated into watershed field experiments, or extrapolated from previous work. Traditional crop residues may also be included, but should not be the sole focus of the watershed field experimental system or modeling efforts.
- The clarity with which the need for new environmental monitoring instrumentation and methodologies is presented, and the quality of the plan presented to develop/design/build new, reliable and economic methodologies and/or instrumentation for measuring and analyzing important sustainability-related variables.
- The quality of any plan presented for the development of modeling capabilities or related tools capable of providing reliable guidance for the design and implementation of sustainable biomass production systems in other watershed areas within the geographic region of focus.
- The credibility of the proposed experimental design and the extent to which it is supported by previous scientific research.

Criterion 2: Work Plan

Weight: [15%]

The extent to which the work plan:

- Clearly defines the scope, schedule, and budget, and demonstrates that the project will be able to achieve its goals and objectives, as planned.
- Includes how progress will be measured (i.e., milestones and deliverables, including quarterly progress reports) and participation in one or more independent peer reviews coupled to a Go/No-Go decision point meeting. These meeting(s) will be convened at strategic point(s) during the period of performance to review the scientific approach and data produced in order to adjust the course of the project, if necessary.
- Has a well designed and reasonable experimental plan based on the planned budget.
- Adequately explains the extent to which the proposed goals and objectives are likely to lead to grower acceptance of the sustainable production system developed in this project.
- Demonstrates the knowledge of and a plan to address all environmental, health and safety, permitting, and compliance concerns related to the project scope.

Criterion 3: Roles, Responsibilities and Capabilities

Weight: [40%]

The extent to which the Applicant adequately demonstrates that its team has the core competencies necessary to cover all project aspects. DOE will evaluate:

- The clarity with which the roles, skills, and expertise of all key personnel are defined.
- The demonstrated experience of key scientists with experimental systems at a watershed scale.
- The degree to which the proposed management plan allows the project to function smoothly and effectively. The clarity with which the project narrative explains who is responsible for what activities in the project, and how information from those activities will be disseminated to other project team members and others upon whom the project is dependent.
- The complement and relative quality of resources that team members and their institutions plan to bring to the project, including but not limited to:
 - Use of existing, well established, and appropriate watershed scale experiment(s) that can be utilized for this project;
 - Peer reviewed and published data that can be utilized in this project;
 - Equipment and instrumentation;
 - Relevant computer models; and
 - Grower networks.

3. Other Selection Factors

Program Policy Factors

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

- Diversity of cellulosic biomass crops/agricultural residues.
- Potential for regional (i.e., multi-state) or national impact.
- Cost share in excess of minimum requirement.

B. Review and Selection Process

1. Merit Review

Applications that pass the initial review will be subjected to a merit review by a panel of independent reviewers.

It is very important that those documents (i.e., Project Abstract and Project Narrative files) that will be used during the Merit Review Process do not contain any Personally Identifiable Information as described in Appendix B.

2. Selection

The Selection Official may consider the Merit Review comments, the recommendations of a Federal panel of reviewers, program policy factors, and the amount of funds available.

3. Discussions and Award

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 satisfactorily resolve the issues identified by the Government will preclude award to the applicant.

C. Anticipated Award Dates

DOE anticipates making awards by 9/29/2010.

SECTION VI - AWARD ADMINISTRATION INFORMATION

A. Award Notices

1. Notice of Selection

DOE will notify applicants selected for award. This notice of selection is not an authorization to begin performance. (See Section IV.G with respect to the allow ability of pre-award costs.)

Organizations whose applications have *not* been selected will be advised as promptly as possible. This notice will explain why the application was not selected.

2. 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) Special Terms and Conditions; (2) Applicable program regulations, if any; (3) Application as approved by DOE; (4) DOE assistance regulations at 10 CFR part 600; (5) National Policy Assurances To Be Incorporated As Award Terms; (6) Budget Summary; and (7) Federal Assistance Reporting Checklist, which identifies the reporting requirements.

For grants and cooperative agreements 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/rtr/index.jsp>.

B. Administrative and National Policy Requirements

1. Administrative Requirements

The administrative requirements for DOE grants and cooperative agreements are contained in 10 CFR part 600 (See: <http://ecfr.gpoaccess.gov>). Grants and cooperative agreements made to universities, non-profits and other entities subject to OMB Circular A-110 are subject to the Research Terms and Conditions located on the National Science Foundation web site at: <http://www.nsf.gov/bfa/dias/policy/rtr/index.jsp>.

2. Special Terms and Conditions and National Policy Requirements

The DOE Special Terms and Conditions for Use in Most Grants and Cooperative Agreements are located at

http://management.energy.gov/business_doe/business_forms.htm,

The National Policy Assurances To Be Incorporated As Award Terms are located at http://management.energy.gov/business_doe/business_forms.htm,
http://management.energy.gov/business_doe/1374.htm.

3. Intellectual Property Provisions

The standard DOE financial assistance intellectual property provisions applicable to the various types of recipients are located at

http://www.gc.doe.gov/financial_assistance_awards.htm.

C. Reporting

Reporting requirements are identified on the Federal Assistance Reporting Checklist, DOE F 4600.2, attached to the award agreement. For a sample Checklist, see <http://management.energy.gov/documents/DOEF46002PolicyVersion.pdf>.

Applicants will be expected to freely provide data and information generated by funded projects to Oak Ridge National Laboratory's Knowledge Discovery Framework (KDF; see http://www1.eere.energy.gov/biomass/pdfs/KDF_fact_sheet.pdf) for use by other stakeholders in the bioenergy community. Examples of the types of data and information that would be desired include, but are not necessarily limited to:

1. Soil loss rates under different cropping systems
2. Soil carbon sequestration rates
3. Rates of pesticide runoff into waterways under different crop management systems
4. Water quality data
5. The preferred situation and management practices for the various energy crops studied.
6. The computer model developed to assist in the design of biomass production systems in other watersheds.

SECTION VII - QUESTIONS/AGENCY CONTACTS

Questions

Questions regarding the content of the announcement must be submitted through the FedConnect system. You must register with FedConnect to respond as an interested party, to submit questions, and to review responses to questions. It is recommended that you register as soon after release of the FOA as possible to have the benefit of all responses. More information is available at https://www.fedconnect.net/Fedconnect/PublicPages/FedConnect_Ready_Set_Go.pdf. DOE will try to respond to a question within 3 business days, unless a similar question and answer have already been posted on the website.

Questions pertaining to the **submission of applications through Grants.gov** should be directed by e-mail to support@grants.gov or by phone to 1-800-518-4726. The Grants.gov Helpdesk is available 24 hours/day except for **Federal Holidays**, when they are closed.

SECTION VIII - OTHER INFORMATION

A. Modifications

Notices of any modifications to this announcement will be posted on Grants.gov. When you download the application at Grants.gov, you can register to receive notifications of changes through Grants.gov.

Notices of any modifications to this announcement will also be available in the FedConnect system. You can receive an email when a modification or an announcement message is posted by registering with FedConnect as an interested party for this FOA. It is recommended that you register as soon after the release of the FOA as possible to ensure you receive timely notice of any modifications or other announcements. More information is available at <http://www.fedconnect.net> and https://www.fedconnect.net/Fedconnect/PublicPages/FedConnect_Ready_Set_Go.pdf

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

Patentable ideas, trade secrets, proprietary or confidential commercial or financial information, disclosure of which may harm the applicant, should be included in an application only when such information is necessary to convey an understanding of the proposed project. The use and disclosure of such data may be restricted, provided the applicant includes the following legend on the first page of the project narrative and specifies the pages of the application which are to be restricted:

“The data contained in pages _____ of this application have been submitted in confidence and contain trade secrets or proprietary information, and such data shall be used or disclosed only for evaluation purposes, provided that if this applicant receives an award as a result of or in connection with the submission of this application, DOE shall have the right to use or disclose the data herein to the extent provided in the award. This restriction does not limit the government’s right to use or disclose data obtained without restriction from any source, including the applicant.”

To protect such data, each line or paragraph on the pages containing such data must be specifically identified and marked with a legend similar to the following: “The following contains proprietary information that (name of applicant) requests not be released to persons outside the Government, except for purposes of review and evaluation.”

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, non-discretionary 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 Program

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 insure the commercialization of technology developed under a DOE agreement. Recipients must obtain permission from DOE before asserting copyright to any data or software developed under this Award.

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. See http://gc.doe.gov/documents/gc62_advance.pdf and <http://www.gc.doe.gov/documents/patwaivclau.pdf>.

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 program 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.

REFERENCE MATERIAL

Appendix A – Definitions

"**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 CCR.

"**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.

"**Central Contractor Registration (CCR)**" is the primary database which collects, validates, stores and disseminates data in support of agency missions. Funding Opportunity Announcements which require application submission through FedConnect or Grants.gov require that the organization first be registered in the CCR at <http://www.grants.gov/CCRRegister>.

"**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-program aspects of the Financial Assistance process.

"**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 CCR. Call 1-866-705-5711 to receive one free of charge. http://www.grants.gov/applicants/request_duns_number.jsp

“E-Business Point of Contact (POC)” is the individual who is designated as the Electronic Business Point of Contact in the CCR registration. This person is the sole authority of the organization with the capability of designating or revoking an individual’s ability to conduct CCR 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>

"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 post opportunities and make awards via the web. Any Applicant can view public postings without registering. However, registered users have numerous added benefits including the ability to electronically submit Applications / Responses to the government directly through this site. <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 program 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" means 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 CCR. The E-Business Point of Contact will need the MPIN to assign privileges to the individual(s) authorized to perform CCR 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).

“Modification” means a revision to a Funding Opportunity Announcement.

"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).

“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.

"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.

"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 program 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 Program 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 CFR600.123;

- State and Local Governments are found at 10 CFR600.224;
- For-profit Organizations are found at 10 CFR600.313.

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 Regulations:

<http://ecfr.gpoaccess.gov/cgi/t/text/text-idx?c=ecfr&sid=98a996164312e8dcf0df9c22912852b0&rgn=div5&view=text&node=10:4.0.1.3.9&idno=10>

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 program.
- (3) They are necessary and reasonable for proper and efficient accomplishment of project or program objectives.
- (4) They are allowable under the cost principles applicable to the type of entity incurring the cost as follows:

(a) *For-profit organizations.* Allowability of costs incurred by for-profit organizations and those nonprofit organizations listed in Attachment C to OMB Circular A-122 is determined in accordance with the for-profit 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.

(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 OMB Circular No. A-21 -- Cost Principles for Educational Institutions

(ii) *Other nonprofit organizations.* Allowability is determined in accordance with OMB Circular A-122, Cost Principles for Non-Profit Organizations

(iii) *Hospitals.* Allowability is determined in accordance with the provisions of 45 CFR Part 74, Appendix E, 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 OMB Circular No. A-87, Cost Principles for State, Local, and Indian Tribal Governments

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

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

(B) *Valuing and documenting contributions*

(1) *Valuing recipient's property or services of recipient's employees.* Values are established in accordance with the applicable cost principles, which mean that amounts chargeable to the project are determined on the basis of costs incurred. For real property or equipment used on the project, the cost principles authorize depreciation or use charges. The full value of the item may be applied when the item will be consumed in the performance of the award or fully depreciated by the end of the award. In cases where the full value of a donated capital asset is to be applied as cost sharing or matching, that full value must be the lesser or the following:

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

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

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

(3) *Valuing volunteer services.* Volunteer services furnished by professional and technical personnel, consultants, and other skilled and unskilled labor may be counted as cost

sharing or matching if the service is an integral and necessary part of an approved project or program. Rates for volunteer services must be consistent with those paid for similar work in the recipient's organization. In those markets in which the required skills are not found in the recipient organization, rates must be consistent with those paid for similar work in the labor market in which the recipient competes for the kind of services involved. In either case, paid fringe benefits that are reasonable, allowable, and allocable may be included in the valuation.

(4) *Valuing property donated by third parties.*

- (a) Donated supplies may include such items as office supplies or laboratory supplies. Value assessed to donated supplies included in the cost sharing or matching share must be reasonable and must not exceed the fair market value of the property at the time of the donation.
- (b) Normally only depreciation or use charges for equipment and buildings may be applied. However, the fair rental charges for land and the full value of equipment or other capital assets may be allowed, when they will be consumed in the performance of the award or fully depreciated by the end of the award, provided that the contracting officer has approved the charges. When use charges are applied, values must be determined in accordance with the usual accounting policies of the recipient, with the following qualifications:
 - (i) The value of donated space must not exceed the fair rental value of comparable space as established by an independent appraisal of comparable space and facilities in a privately-owned building in the same locality.
 - (ii) The value of loaned equipment must not exceed its fair rental value.

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

- (a) Volunteer services must be documented and, to the extent feasible, supported by the same methods used by the recipient for its own employees.
- (b) The basis for determining the valuation for personal services and property must be documented.

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

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)

Appendix D – Budget Justification

Using the “Object Class Categories” in the SF-424A Budget form, justify the costs in each category **for each budget period of the project.**

The SF424A Budget form and the Budget Justification must include both Federal (DOE), and Non-Federal (cost share) funds, thereby reflecting TOTAL PROJECT COSTS proposed.

For each sub-recipient with total project costs of \$100,000 or more, a separate SF-424A budget and budget justification form must be submitted. For sub-recipients with estimated costs less than \$100,000, provide what Statement of Project Objectives task(s) are being performed, the purpose/need for the effort, and a basis of the estimated costs that is considered sufficient for DOE evaluation.

All costs incurred by the Applicant’s sub-recipients, vendors, contractors, consultants and Federal Research and Development Centers (FFRDCs), should be entered only in section f. Contractual. All other sections are for the costs of the Applicant only.

Personnel

List costs solely for employees of the Applicant. Identify positions to be supported. Key personnel should be identified by title. All other personnel should be identified either by title or a group category. State the amounts of time (e.g., hours or % of time) to be expended, the composite base pay rate, total direct personnel compensation and identify the rate basis (e.g., actual salary, labor distribution report, technical estimate, state civil service rates, etc.). Identify the number of employees (on a Full Time Equivalent) that will be employed in each position or group category. Note the prevailing wage requirements in the ARRA (P.L. 111-5). See example below.

Task # and Title	Position Title	Budget Period 1			Budget Period 2			Budget Period 3			Project Total Hours	Project Total Dollars	Rate Basis
		Time (Hours)	Pay Rate (\$/Hr)	Total Budget Period 1	Time (Hours)	Pay Rate (\$/Hr)	Total Budget Period 2	Time (Hours)	Pay Rate (\$/Hr)	Total Budget Period 3			
Task 1. – Task Name	Sr. Engineer (1)	2000	\$85.00	\$170,000	200	\$50.00	\$10,000	200	\$50.00	\$10,000	2400	\$190,000	Actual Salary
Task 2 – Task Name	Process engineers (3)	6200	\$35.00	\$217,000	400	\$35.00	\$14,000	600	\$35.00	\$21,000	7200	\$252,000	Actual Salary
Task 3 – Task Name	Technician (1)	1800	\$20.00	\$36,000	0	\$0.00	\$0	0	\$0.00	\$0	1800	\$36,000	Actual Salary

Fringe

A federally approved fringe benefit rate agreement, or a proposed rate supported and agreed upon by DOE for estimating purposes is required if reimbursement for fringe benefits is requested. If a fringe benefit rate has been negotiated with, or approved by, a federal government agency, a copy of the latest rate agreement must be included with this application. If there is not a current, federally approved rate agreement negotiated and available, provide a copy of the proposal with the application. If selected, the rate agreement will be finalized during award negotiations. Calculate the fringe rate and enter the total amount in Section B, line 6.b. (“Fringe Benefits”) of form SF-424A.

IMPORTANT: Provide all fringe rates, along with a complete explanation and the full calculations used to derive the total fringe costs. If the total fringe costs are a cumulative amount of more than one

calculation or rate application, the explanation and calculations should identify all rates used, along with the base they were applied to (and how the base was derived), and a total for each (along with grand total). The rates and how they are applied should not be averaged to get one fringe rate. NOTE: The fringe rate should be applied to both the Federal Share and Recipient Cost Share.

Travel

See example of travel detail below. Identify total Foreign and Domestic Travel as separate items. Purpose of travel are items such as professional conferences, DOE sponsored meetings, project management meetings, etc. Identify number of travelers, estimated cost per traveler, and duration of trip. The Basis for Estimating Costs could be items such as past trips, current quotations, Federal Travel Regulations, etc. All listed travel must be necessary for performance of the Statement of Project Objectives. NOTE: All projects should include travel for 1-2 travelers to a DOE project review during each year of the project. Each review will take approximately 2-3 days.

Purpose of travel	No. of Travelers	Depart From	Destination	No. of Days	Cost per Traveler	Cost per Trip	Basis for Estimating Costs
Budget Period 1							
Domestic Travel							
Visit to reactor mfr. to set up vendor agreement	2	Denver CO	Dallas TX	2	\$650	\$1,300	Internet prices
Domestic Travel subtotal						\$1,300	
International Travel							
Visit to technology provider to discuss IP agreement	2	Denver CO	Berlin Germany	5	\$4,000	\$8,000	Previous experience
International Travel subtotal						\$8,000	
Budget Period 1 Total						\$9,300	
(repeat as necessary for each Budget Period)							

Equipment

Equipment is generally defined as an item with an acquisition cost greater than \$5,000 and a useful life expectancy of more than one year. All proposed equipment should be identified, providing a basis of cost such as vendor quotes, catalog prices, prior invoices, etc., and briefly justifying its need as it applies to the Statement of Project Objectives. If it is existing equipment, and the value of its contribution to the project budget is being shown as cost share, provide logical support for the estimated value shown. If it is new equipment which will retain a useful life upon completion of the project, provide logical support for the estimated value shown. For equipment over \$50,000 in price, also include a copy of the associated vendor quote or catalog price list. See example below.

Equipment Item	Qty	Unit Cost	Total Cost	Basis of Cost	Justification of need
Budget Period 1					
EXAMPLE ONLY!!! Thermal shock chamber	2	\$20,000	\$40,000	Vendor Quote	Reliability testing of PV modules- Task 4.3
Budget Period 1 Total			\$40,000		
(repeat as necessary for each Budget Period)					

Supplies

Supplies are generally defined as an item with an acquisition cost of \$5,000 or less and a useful life expectancy of less than one year. Supplies are generally consumed during the project performance.

Further definitions can be found in 10 CFR 600.

Proposed supplies should be identified, providing a basis of cost such as vendor quotes, catalog prices, prior invoices, etc., and briefly justifying the need for the Supplies as they apply to the Statement of Project Objectives. Note that Supply items must be direct costs to the project at this budget category, and not duplicative of supply costs included in the indirect pool that is the basis of the indirect rate applied for this project.

General Category of Supplies	Qty	Unit Cost	Total Cost	Basis of Cost	Justification of need
Budget Period 1					
EXAMPLE ONLY!!! Wireless DAS components	10	\$360.00	\$3,600	Catalog price	For Alpha prototype - Task 2.4
Budget Period 1 Total			\$3,600		
(repeat as necessary for each Budget Period)					

Contractual

The applicant must provide and justify all costs related to sub-recipients, vendors, contractors, consultants and FFRDC partners. See example below.

Sub-recipients (partners, sub-awardees):

For each sub-recipient with total project costs of \$100,000 or more, a separate SF-424A budget and budget justification form must be submitted. For sub-recipients with estimated costs less than \$100,000, provide what Statement of Project Objectives task(s) are being performed, the purpose/need for the effort, and a basis of the estimated costs that is considered sufficient for DOE evaluation.

Vendors (includes contractors and consultants):

Identify all vendors, contractors and consultants supplying commercial supplies or services used to support the project. The support to justify vendor costs (in any amount) should provide the purpose for the products or services and a basis of the estimated costs that is considered sufficient for DOE evaluation.

Federal Research and Development Centers (FFRDCs):

For FFRDC partners, the applicant should provide a Field Work Proposal (if not already provided with the original application), along with the FFRDC labor mix and hours, by category and FFRDC major purchases greater than \$25,000, including Quantity, Unit Cost, Basis of Cost, and Justification.

Sub-Recipient Name/Organization	Purpose/Tasks in SOPO	Budget Period 1 Costs	Budget Period 2 Costs	Budget Period 3 Costs	Project Total
EXAMPLE ONLY!!! XYZ Corp.	Partner to develop optimal fresnel lens for Gen 2 product - Task 2.4	\$48,000	\$32,000	\$16,000	\$96,000
	Sub-total	\$48,000	\$32,000	\$16,000	\$96,000
Vendor Name/Organization	Product or Service, Purpose/Need and Basis of Cost (Provide additional support at bottom of page as needed)	Budget Period 1 Costs	Budget Period 2 Costs	Budget Period 3 Costs	Project Total
EXAMPLE ONLY!!! ABC Corp.	Vendor for developing custom robotics to perform lens inspection, alignment, and placement (Task 4). Required for expanding CPV module mfg. capacity. Cost is from competitive quotes.	\$32,900	\$86,500		\$119,400
	Sub-total	\$32,900	\$86,500	\$0	\$119,400
FFRDC Name/Organization	Purpose	Budget Period 1 Costs	Budget Period 2 Costs	Budget Period 3 Costs	Project Total
					\$0

	Sub-total	\$0	\$0	\$0	\$0
Total Contractual		\$80,900	\$118,500	\$16,000	\$215,400

Construction

Construction, for the purpose of budgeting, is defined as all types of work done on a particular facility, including erecting, altering, or remodeling. Construction conducted by the award recipient should be justified in this category. Any construction work that is performed by a vendor or subrecipient to the award recipient should be entered under “Contractual.”

Identify all proposed construction, providing a basis of cost such as engineering estimates, prior construction, etc., and briefly justify its need as it applies to the Statement of Project Objectives. For major endeavors, a copy of the engineering estimate or quote should also be provided. See example below.

Overall description of construction activities:			
Example Only!!! - Build wind turbine platform			
General Description	Cost	Basis of Cost	Justification of need
Budget Period 1			
Three days of excavation for platform site EXAMPLE ONLY!!!	\$28,000	Engineering estimate	Site must be prepared for construction of platform.
Budget Period 1 Total	\$28,000		
(repeat as necessary for each Budget Period)			

Other Direct Costs

Other direct costs are direct cost items required for the project which do not fit clearly into other categories, and are not included in the indirect pool for which the indirect rate is being applied to this project. Basis of cost are items such as vendor quotes, prior purchases of similar or like items, published price list, etc.

General description	Cost	Basis of Cost	Justification of need
Budget Period 1			
EXAMPLE ONLY!!! Grad student tuition	\$16,000	Established UCD costs	Support of graduate students working on project
Budget Period 1 Total	\$16,000		
(repeat as necessary for each Budget Period)			

Indirect Costs

A federally approved indirect rate agreement, or rate proposed supported and agreed upon by DOE for estimating purposes is required if reimbursement of indirect benefits is requested. If there is a federally approved indirect rate agreement, a copy must be provided with this application and if selected, must be provided electronically to the Contracting Officer for this project. If there is no current, federally approved indirect rate agreement or if the federally approved indirect rate agreement has been changed or updated, a rate proposal must be included with the application. If selected, the rate agreement will be finalized during award negotiations. Calculate the indirect rate dollars and enter the total in the Section B., line 6.j. (Indirect Charges) of form SF 424A.

IMPORTANT: Provide a complete explanation and the full calculations used to derive the total indirect costs. If the total indirect costs are a cumulative amount of more than one calculation or rate application, the explanation and calculations should identify all rates used, along with the base they were applied to (and how the base was derived), and a total for each (along with grand total). The rates and how they are applied should not be averaged to get one indirect cost percentage. **NOTE:** The indirect rate should be applied to both the Federal Share and Recipient Cost Share.

Cost Share

A detailed presentation of the cash or cash value of all cost share proposed for the project must be provided. Identify the source and amount of each item of cost share proposed by the Applicant and each sub-recipient. Letters of commitment must be submitted for all third party cost share (other than award recipient).

Note that “cost-share” is not limited to cash investment. Other items that may be assigned value in a budget as incurred as part of the project budget and necessary to performance of the project, may be considered as cost share, such as: contribution of services or property; donated, purchased or existing equipment; buildings or land; donated, purchased or existing supplies; and/or unrecovered personnel, fringe benefits and indirect costs, etc. For each cost share contribution identified as other than cash, identify the item and describe how the value of the cost share contribution was calculated.

Funds from other Federal sources MAY NOT be counted as cost share. This prohibition includes FFRDC sub-recipients. Non-Federal sources include private, state or local Government, or any source not originally derived from Federal funds.

Fee or profit will not be paid to the award recipients or subrecipients of financial assistance awards. Additionally, foregone fee or profit by the applicant shall not be considered cost sharing under any resulting award. Reimbursement of actual costs will only include those costs that are allowable and allocable to the project as determined in accordance with the applicable cost principles prescribed in 10 CFR 600.127, 10 CFR 600.222 or 10 CFR 600.317. Also see 10 CFR 600.318 relative to profit or fee. See example below.

Organization/Source	Type (cash or other)	Cost Share Item	Budget Period 1 Cost Share	Budget Period 2 Cost Share	Budget Period 3 Cost Share	Total Project Cost Share
ABC Company EXAMPLE ONLY!!!	Cash	Project partner ABC Company will provide 40 PV modules for product development at 50% off the of the retail price of \$680	\$13,600			\$13,600
		Totals	\$0	\$0	\$0	\$0
Total Project Cost:		\$312,300	Cost Share Percent of Award:			0.0%