

# PROGRAM ANNOUNCEMENT TO NATIONAL LABORATORIES



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

## **Recovery Act: National Laboratory Call for Foundational Photovoltaics and Concentrating Solar Power Research and Development**

**Program Announcement Number: DE-FOA-0000087**

**Announcement Type: Initial**

**CFDA Number: 81.087**

**Issue Date: 05/27/2009**

**Application Due Date: 07/15/2009, 11:59 PM Eastern Time**

**NOTE: Questions regarding the content of this announcement must be submitted through FedConnect. Offerors must be registered in FedConnect to submit or view Questions.**

## **APPLICATION SUBMISSION, FEDCONNECT QUICK START GUIDE, REGISTRATION REQUIREMENTS, AND WHERE TO SUBMIT QUESTIONS**

**1. Application Submission:** APPLICATIONS MUST BE SUBMITTED THROUGH FEDCONNECT AT <https://www.fedconnect.net/> TO BE CONSIDERED FOR AWARD. The application forms identified in Parv IV. C. are posted as attachments to this PA (in FedConnect) and are also found at <https://www.eere-pmc.energy.gov/Forms.aspx#APPForms>. It is the responsibility of the offeror, prior to the Application due date and time, to verify successful transmission. Organizations with system-to-system capabilities with Grants.gov for their submissions may continue to use their systems, and their applications will be accepted in Grants.gov to be considered for award.

**2. 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 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. Submission via FedConnect constitutes the authorized representative's electronic signature.

**3. FedConnect Quick Start Guide:** Use this guide to assist you with FedConnect: [https://www.fedconnect.net/FedConnect/PublicPages/FedConnect\\_Ready\\_Set\\_Go.pdf](https://www.fedconnect.net/FedConnect/PublicPages/FedConnect_Ready_Set_Go.pdf)

**4. Registration Requirements:** To submit an application in response to this PA, Offerors must be registered with FedConnect. Before you can register with FedConnect, you will need the following:

- A. Your company's DUNS (including plus 4 extension if applicable). If you don't know your company's DUNS or if your company does not have a DUNS you can search for it or request one at <http://fedgov.dnb.com/webform/displayHomePage.do>.
- B. A federal Central Contractor Registration (CCR) account. If your company is not currently registered with CCR, please register at [www.ccr.gov](http://www.ccr.gov) before continuing with your FedConnect registration.
- C. Possibly, your company's CCR MPIN. If you are the first person from your company to register, FedConnect will need to create a company account. Only a person who knows your company's CCR MPIN can do this. To find out who this is in your company, go to <http://www.ccr.gov/> and click **Search CCR**. Once you've found your company, locate the Electronic Business Point of Contact.

After the initial FedConnect account is created, employees can register themselves without the MPIN. If you are not sure whether your company has an account with FedConnect, don't worry. Complete the registration form and FedConnect will let you know. (PLEASE REFER TO THE FEDCONNECT QUICK START GUIDE FOR QUESTIONS)

Offerors who are not registered with CCR and FedConnect, should allow at least 21 days to complete these requirements. It is suggested that the process be started as soon as possible. For those Offerors already registered in CCR, the CCR registration must be updated annually at <http://www.ccr.gov/Renew.aspx>.

**5. Questions:** Questions regarding the content of the announcement must be submitted through the FedConnect portal. You must register with FedConnect to respond as an interested party to submit questions, and to view responses to questions. It is recommended that you register as soon after release of the PA 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](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 FedConnect should be directed by e-mail to [support@FedConnect.net](mailto:support@FedConnect.net) or by phone to FedConnect Support at 1-800-899-6665.

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## PART I – PROGRAM ANNOUNCEMENT DESCRIPTION

### A. INTRODUCTION: AMERICAN RECOVERY AND REINVESTMENT ACT OF 2009

Projects under this Program Announcement (PA) will be funded, in whole or in part, with funds appropriated by the American Recovery and Reinvestment Act of 2009, Pub. L. 111-5, (Recovery Act or Act). The Recovery Act's purposes are to stimulate the economy and to create and retain jobs. The Act gives preference to activities that can be started and completed expeditiously, including a goal of using at least 50 percent of the funds made available by it for activities that can be initiated not later than June 17, 2009. Due to the schedule of this PA, the preceding date will not affect proposals submitted under this PA. Special consideration will be given to projects that promote and enhance the objectives of the Act, especially job creation, preservation and economic recovery, in an expeditious manner.

Be advised that special terms and conditions may apply to projects funded by the Act relating to:

- Reporting, tracking and segregation of incurred costs;
- Reporting on job creation and preservation;
- Publication of information on the Internet;
- Access to records by Inspectors General and the Government Accountability Office;
- Prohibition on use of funds for gambling establishments, aquariums, zoos, golf courses or swimming pools;
- Ensuring that iron, steel and manufactured goods are produced in the United States;
- Ensuring wage rates are comparable to those prevailing on projects of a similar character;
- Protecting whistleblowers and requiring prompt referral of evidence of a false claim to an appropriate inspector general; and
- Certification and Registration.

These special terms and conditions will be based on provisions included in Titles XV and XVI of the Act. The exact terms and conditions will be provided as soon as possible. The currently available Special Provisions are located at:

[http://management.energy.gov/business\\_doe/business\\_forms.htm](http://management.energy.gov/business_doe/business_forms.htm).

The Office of Management and Budget (OMB) has issued Initial Implementing Guidance for the Recovery Act. See [M-09-10, Initial Implementing Guidance for the American Recovery and Reinvestment Act of 2009](#). OMB will be issuing additional guidance concerning the Act in the near future. Applicants should consult the DOE website, [www.energy.gov](http://www.energy.gov), the OMB website <http://www.whitehouse.gov/omb/>, and the Recovery website, [www.recovery.gov](http://www.recovery.gov), regularly to keep abreast of guidance and information as it evolves.

Recipients of funding appropriated by the Act shall comply with requirements of applicable Federal, State, and local laws, regulations, DOE policy and guidance, and instructions in this PA, unless relief has been granted by DOE. Recipients shall flow down the requirements of applicable Federal, State and local laws, and regulations, DOE policy and guidance, and

instructions in this PA to subrecipients at any tier to the extent necessary to ensure the recipient's compliance with the requirements.

Be advised that Recovery Act funds can be used in conjunction with other funding as necessary to complete projects, but tracking and reporting must be separate to meet the reporting requirements of the Recovery Act and related OMB Guidance. Applicants for projects funded by sources other than the Recovery Act should plan to keep separate records for Recovery Act funds and ensure those records comply with the requirements of the Act. Funding provided through the Recovery Act that is supplemental to an existing grant is one-time funding.

Applicants should begin planning activities for their first tier subawardees, including obtaining a DUNS number (or updating the existing DUNS record), and registering with the Central Contractor Registration (CCR). The extent to which subawardees will be required to register in CCR will be determined by OMB at a later date.

## B. DESCRIPTION

The mission of the Department of Energy (DOE) Solar Energy Technologies Program (SETP) is to conduct research, development, demonstration and deployment activities to accelerate widespread commercialization of clean solar energy technologies across America, diversifying the Nation's electricity supply options, while increasing national security and improving the environment.

DOE is utilizing a multi-tiered, multi-phased strategy to address the near-, mid- and long-term technology development needs to meet the goals of making solar-generated electricity cost competitive, scaling up domestic manufacturing capacity to supply beyond 5 GW of domestic PV installations by 2015, and increasing the cumulative U.S. installed solar to 100 GW by 2030. The on-going approach coordinates and funds applied research and development emphasizing the development, performance, cost, and durability of materials and components, or process improvements for increased efficiency. The overall focus continues to be proof of technology concepts, scale-up development and demonstrations, cost reductions in the various technologies and processes, and system deployment support. More general information about the Solar Energy Technologies Program can be found at: <http://www1.eere.energy.gov/solar/>.

DOE supports both photovoltaics (PV) and concentrating solar power (CSP) research and development. For both technology areas, increasing the overall solar system efficiency and lowering the total manufacturing costs are essential. PV program activities have focused on bringing emerging technologies and manufacturing processes to market. However, the program also supports the development of innovative, revolutionary, and highly disruptive future-generation solar to electric conversion technologies. Similarly, CSP program activities focus on lowering the cost and improving the reliability of components and systems, as well as longer-term research and development of advanced concepts, including optical materials and coatings, thermal energy storage, and heat transfer media.

## **Purpose**

The purpose of this Program Announcement (PA) for “National Laboratory Foundational Photovoltaics and Concentrating Solar Power Research and Development” is to complement ongoing SETP-funded private sector research activities (see [http://www1.eere.energy.gov/solar/past\\_opportunities.html](http://www1.eere.energy.gov/solar/past_opportunities.html) for a listing of past funding opportunities. Overviews of awards selected under some of those opportunities can be found in the “Features” section at [http://www1.eere.energy.gov/solar/financial\\_opportunities.html](http://www1.eere.energy.gov/solar/financial_opportunities.html)). This PA is restricted to DOE National Laboratories; the National Laboratories were not eligible applicants to previous opportunities. Specifically, this PA seeks to provide support for new research and development projects for Next Generation PV Technologies (Topic 1), PV Supply Chain and Crosscutting Technologies (Topic 2), and Advanced Heat Transfer Fluids and Novel Thermal Storage for Concentrating Solar Power (Topic 3). This PA also seeks to enhance capabilities for testing and evaluating advanced CSP concepts (Topic 4) and advanced Photovoltaics manufacturing capability (Topic 5).

## **Scope**

### **Topic 1 - Next Generation PV Technologies:**

Under this Topic, proposals are sought to perform exploratory R&D for innovative, revolutionary, and highly disruptive future-generation solar to electric conversion technologies. The device and manufacturing process research that is targeted would be expected to produce prototype cells and/or processes by 2015, with the potential for full commercialization in the 2020-2030 time-frame. The SETP realizes that some technologies are more mature than others and various technologies will reach commercialization in different time-frames. Proposals for highly innovative technologies that may be ready for the prototype stage prior to 2015 are encouraged as well.

Potential areas of interest for this Topic include, but are not limited to the following:

- PV Devices– organic, crystalline, non-single crystal devices, photoelectrochemical, advanced multi-junction, low dimensional structures, optimized interfaces, transport properties and cross-cutting issues;
- Hybrid PV Device Concepts – fuels generation, powered electrochromics and storage; and
- Manufacturing – low cost techniques, environmental/recycling issues and novel manufacturing processes.

References:

Proceedings of the University and Industry Exploratory Research Funding Opportunities Workshop on February 7, 2007,

[http://www1.eere.energy.gov/solar/solar\\_america/sai\\_univ\\_industry\\_meeting\\_020707.html](http://www1.eere.energy.gov/solar/solar_america/sai_univ_industry_meeting_020707.html)

Next Generation (PV) Device and Processes Funding Opportunity, [http://www1.eere.energy.gov/solar/financial\\_opps\\_detail.html?sol\\_id=251](http://www1.eere.energy.gov/solar/financial_opps_detail.html?sol_id=251)

Next Generation (PV) Device and Processes Funding Opportunity Selections,

[http://www1.eere.energy.gov/solar/solar\\_america/pdfs/next\\_generation\\_pv\\_prospectus.pdf](http://www1.eere.energy.gov/solar/solar_america/pdfs/next_generation_pv_prospectus.pdf)

## Topic 2 – PV Supply Chain and Crosscutting Technologies:

Under this topic, proposals are sought to identify and accelerate the development of unique products or processes that are expected to have a large impact on the industry, or a segment of the industry, in support of the overall program goals. Successful applicants will focus on component and/or manufacturing technologies with the potential to have a near-term impact on a substantial segment of the PV industry. Near term is defined as technologies with expected market impacts evident within 2-6 years of award. Responsive proposals will either 1) have a high impact on innovative evolutionary improvements that can be supplied across the industry at high volumes and lower costs than conventional technology today; or 2) propose disruptive technologies applicable to a narrow segment of the industry, which can dramatically reduce costs.

In contrast to activities focused on improvements within specific product designs, this Topic focuses on cross-cutting cost reduction opportunities that provide a generic benefit across a segment of the PV industry. Past examples of such cross-cutting technologies demonstrating a broad impact on the industry include wire saws, screen printing, laser scribing, in-situ analysis, automated handling, and spray-on dopants. Examples of future high-impact technologies may include processing steps to improve throughput, yield or diagnostics; material solutions to improve reliability or enhance optical, thermal, or electrical performance; or system components that streamline installation. Technology focus can include, but is not limited to, module components, such as flexible barrier or protective coatings, transparent conductors, contacts (high aspect ratio, printed, non-silver), high performance glass (low emissivity, high transmission, high temperature, low soiling), thermal solutions (concentrating photovoltaic (CPV) heat sinks, infrared rejection), light trapping, adhesives, and test methods to evaluate module energy utilization efficiency; non-module components, such as inverter components, trackers, building integration, streamlined balance of system solutions, intelligent controls (automated metering, utility-grade metrics, interactive intelligence, adaptive logic), and diagnostic tools for system operation; and manufacturing processes and metrologies, such as CPV alignment, material flux measurement, fast optical characterization, materials recycling, cell crack detection methodologies, and all aspects of cell fabrication including kerfless wafering.

### References:

Photovoltaic (PV) Supply Chain and Cross-Cutting Technologies Funding Opportunity, [http://www1.eere.energy.gov/solar/financial\\_opps\\_detail.html?sol\\_id=237](http://www1.eere.energy.gov/solar/financial_opps_detail.html?sol_id=237)

## Topic 3 – Advanced Heat Transfer Fluids and Novel Thermal Energy Storage for Concentrating Solar Power

### **Advanced Heat Transfer Fluids (HTF)**

Proposals are sought covering a broad range of investigation into new fluids for high-temperature heat transfer applications. In doing so, the scope of interest is not limited to pure substances or solutions that meet the strict definition of a fluid. Candidate fluids may include homogeneous eutectic mixtures or heterogeneous two-phase mixtures such as sol suspensions and colloidal dispersions. Any potential fluid should possess the desired physical and chemical properties that enable it to meet the requirements of a high-temperature HTF for parabolic trough (line focus) applications. These properties are:

- thermal stability as a liquid to about 500°C,
- vapor pressure of about 5 atmosphere to about 500°C,
- freezing point less than 80°C,
- specific gravity in the range of 0.7 - 1.7 to about 500°C,
- heat capacity in the range of 2–5 J/g/K to about 500°C,
- viscosity of about 1 centipoise to about 500°C,
- chemical compatibility with common stainless steels.

For point-focus applications (power towers, concentrating dishes), candidate fluids need to possess these properties at temperatures to or above 600°C. For line-focus applications including parabolic troughs and linear Fresnel, the required upper limit for thermal stability for the HTF is about 500°C. In addition to the desired chemical and physical properties, candidate fluids should meet environmental safety and health standards for toxicity.

### **Novel TES Systems**

Proposals are sought covering the development of novel concepts for thermal energy storage (TES) systems that are applicable to any of the CSP systems. The thermal energy storage system may utilize a high temperature working fluid proposed or it may be entirely separate. However, the coupling of the high temperature storage medium to the collection of solar energy (through some type of heat exchange) must be included as part of the proposed work. The year 2020 objective for TES is to achieve costs below \$15/kWh<sub>thermal</sub> with a round trip efficiency of greater than 93%. Several possible TES configurations exist for achieving this objective. TES systems are classified according to the storage mechanism and storage concept. Mechanisms include sensible, latent, and chemical. Sensible storage relies on changes in the medium's temperature to capture and release thermal energy. Latent storage uses a phase change of the medium to capture and release thermal energy. Chemical storage is based on a reversible thermochemical reaction to capture and release thermal energy. Storage concepts may involve a single storage medium or dual storage media. In the single medium concept, the storage medium itself (typically a liquid) circulates through a heat exchanger or the solar collectors to acquire thermal energy. The liquid medium is stored in two tanks, one for cold and one for hot liquid. In the dual media concept (liquid and solid), the primary storage medium (solid) is stationary while the secondary medium (liquid) circulates.

Any novel concept or approach that is based on a sensible, latent or chemical storage mechanism will be considered. Significant modifications to existing TES systems will also be considered.

#### References:

Advanced Heat Transfer Fluids and Novel Thermal Storage Concepts for Concentrating Solar Power Generation Funding Opportunity,

[http://www1.eere.energy.gov/solar/financial\\_opps\\_detail.html?sol\\_id=238](http://www1.eere.energy.gov/solar/financial_opps_detail.html?sol_id=238)

Topic 4 – Advanced CSP Concepts, Testing and Evaluation:

A critical need for the solar industry is the ability to independently test and validate performance of the advanced technologies that are being developed. This need is particularly important to support the dramatic growth of the Concentrating Solar Power (CSP) industry, including having capability to test the latest advances in system designs and thermal storage. SETP has provided test and evaluation capabilities to industry for many years through its national laboratories. Under this Topic, proposals are sought to enhance existing national laboratory testing and evaluation capabilities to better support new materials and design testing in the areas of:

- Concentrator Optics
- Advanced Receivers
- Heat Transfer Fluids and Thermal Storage Materials

Successful proposals will address gaps in current testing capabilities relative to identified industry needs.

#### Topic 5 – Advanced Photovoltaics Manufacturing Capability:

A critical need for the solar industry is the ability to evaluate manufacturing processes (such as new material formulations, deposition approaches, etc.) at large-area pre-pilot scale. However, the tools necessary to validate the viability of these new technologies can be costly, especially for small start-ups. SETP supports industry in this area by providing access to photovoltaic processing tools through DOE’s national laboratories. By providing this cross-cutting capability to industry, DOE is able to help industry reduce the risk and cost of bringing new technologies to market. Under this Topic, proposals are sought to enhance existing national laboratory process development capabilities. Emphasis should be placed on tools for silicon wafer replacement; however, support for other cross-cutting process development capability will also be considered.

Successful proposals will address gaps in current testing capabilities relative to identified industry needs.

#### **Special Instructions**

The title page of the narrative must list the Topic of the proposal.

DOE National Laboratories may submit multiple proposals provided they meet eligibility requirements as specified (see “Eligibility Information”). Separate proposals must be submitted for each Topic.

**No single Laboratory may submit more than 4 proposals per topic to this Program Announcement where they are the lead laboratory.**

## **PART II – AWARD INFORMATION**

### **A. TYPE OF AWARD INSTRUMENT**

DOE anticipates providing funding for selected projects to DOE National Laboratories through Field Work Proposals.

**B. ESTIMATED FUNDING**

Approximately \$17 million is expected to be available for new awards under this announcement.

**C. MAXIMUM AND MINIMUM AWARD SIZE**

- Ceiling (i.e., the maximum amount for an individual award made under this announcement):

Topics 1-3: \$1,000,000

Topic 4: \$4,500,000

Topic 5: \$2,000,000

- Floor (i.e., the minimum amount for an individual award made under this announcement):  
none

**D. EXPECTED NUMBER OF AWARDS**

DOE anticipates making approximately 10-15 awards under this announcement.

**E. ANTICIPATED AWARD SIZE**

The anticipated award size for projects under each Program/Topic Area in this announcement is:

<u>Program/Topic Area</u>	<u>Award Size</u>
Topics 1-3	\$600,000
Topic 4	\$1,500,000
Topic 5	\$2,000,000

**F. PERIOD OF PERFORMANCE**

DOE anticipates making awards that will run for up to 3 years.

**PART III - ELIGIBILITY INFORMATION**

**A. ELIGIBLE OFFERORS**

Eligibility is restricted to DOE National Laboratories or DOE National Laboratory-led Consortia.

**B. COST SHARING**

**Cost sharing is not required by National Laboratories. However, cost share will be required for institutions of higher education, nonprofit or for-profit private entities, and state and local governments who team with the National Lab primary offeror.** The non-National Lab portion of the budget will require cost sharing of the subawardee’s cost for applied research and/or development from non-federal sources.

The cost share for Non-National Laboratory Subawardees (NNLS) must be at least 20% of the NNLS's total budget for research and development projects and must come from non-Federal sources unless otherwise allowed by law. However, applications with proposed cost share as low as 10% shall be considered, using the Secretary's statutory authority to reduce cost-share requirements. Applicants with NNLSs proposing cost-share below 20% shall provide a justification for their request in the Project Narrative. Federally Funded Research and Development Centers (FFRDCs) that partner with the primary National Lab applicant, who are not included in the list of National labs under Section 2 of the Energy Policy Act of 2005, are not required to cost share.

### C. OTHER ELIGIBILITY REQUIREMENTS

#### Primary Offeror

- DOE FFRDC's are eligible to apply for funding under this announcement if their contracting officer provides written authorization and this authorization is submitted with the proposal. **Save the authorization document in a single file named "FFRDC\_Auth.doc"** If a DOE Federal Laboratory is selected for award, the proposed work will be authorized under the DOE work authorization process and performed under the laboratory's Management and Operating (M&O) contract.

The following wording is acceptable for the authorization:

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

**DOE prefers that the authorization is submitted with the proposal; however the authorization will be accepted up to 30 days after the proposal submission closing date. If the authorization is not submitted with the proposal, please submit written notification with the proposal that the authorization from the cognizant contracting officer is in progress and will be submitted no later than 30 days after the proposal submission closing date.**

- The offeror, 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 offeror and team members if applicable.
- Value/Funding: DOE will fund a DOE FFRDC contractor through the DOE field work proposal system and other Federal laboratory contractors through an interagency agreement with the sponsoring agency.

#### DOE Federal Laboratory Contractors (Team Members or Subawardees)

- If DOE FFRDCs are partnering with the primary offeror:
  - o Authorization: A federal laboratory or other federal agency must provide an authorization from an appropriate authorizing official that it can perform work for other federal entities in a manner consistent with this funding opportunity. Save the authorization document in a single file named "FFRDC\_Auth.pdf"

- o **Effort: No single entity, team member or subawardee can exceed the value/funding of the primary offeror.**
- If Non DOE federal laboratories are partnering with the primary offeror:
  - o The federal agency contracting officer sponsoring the federal laboratory contractor must authorize in writing the use of the federal laboratory contractor on the proposed project and this authorization must be submitted with the proposal. The use of a federal laboratory contractor must be consistent with the contractor's authority under its award.

#### **D. MULTIPLE PRINCIPAL INVESTIGATORS**

The assignment and use of multiple Principal Investigators (PIs) in projects awarded under this PA is allowed. The offeror, whether a single organization or team/partnership/consortium, must however indicate in the application if the project will include multiple PI's. The decision to use multiple PIs for a project is the sole responsibility of the offeror. If multiple PI's will be designated, the application must identify in the application the Contact PI/Project Coordinator and provide a "Coordination and Management Plan" that describes the organization structure of the project as it pertains to the designation of multiple PI's. 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
- PI's roles and administrative, technical and scientific responsibilities for the project

### **PART IV – PROPOSAL AND SUBMISSION INFORMATION**

#### **A. ADDRESS TO REQUEST PROPOSAL PACKAGE**

Application forms are found at the web sites provided below and also at the Recipient Resources forms page at <https://www.eere-pmc.energy.gov/Forms.aspx#APPForms>

#### **B. LETTER OF INTENT AND PRE-PROPOSAL**

##### **1. Letter of Intent**

A letter of intent is not required.

##### **2. Pre-proposal**

A pre-proposal is not required.

#### **C. CONTENT AND FORM OF PROPOSAL**

Proposal forms are provided as separate attachments to this Program Announcement which is posted on the FedConnect website at <https://www.fedconnect.net/FedConnect>. The proposal forms are also available at <https://www.eere-pmc.energy.gov/forms.aspx>.

You must complete the proposal forms, in accordance with the instructions on the forms and the additional instructions below, as required by this PA.

### **Field Work Proposal (DOE Form No 412.1)**

Offerors must complete and submit a DOE Field Work Proposal (FWP) for the proposed project. The FWP should be prepared in accordance with the requirements in DOE Order 412.1 Work Authorization System. DOE O 412.1 is available at ([http://management.energy.gov/documents/DOE\\_O\\_412\\_1.doc](http://management.energy.gov/documents/DOE_O_412_1.doc)). Save this FWP in a single Word file named "Proposal.doc".

#### **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 offeror, the project director/principal investigator, 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). **The project summary/abstract must specify the Topic Area of the proposal.** Offerors are cautioned that this document should not include any proprietary information, trade secrets, or other confidential business, financial or sensitive information, since this summary may be subject to public disclosure under the Freedom of Information Act (FOIA). 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 single file named "Summary.doc".

#### **b. Project Narrative File - Mandatory Other Attachment**

The project narrative must not exceed 20 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 title page of the narrative must specify the Topic area of the proposal.** EVALUATORS WILL REVIEW ONLY THE NUMBER OF PAGES SPECIFIED IN THE PRECEDING SENTENCE. The font must not be smaller than 11 point. Do not include any Internet addresses (URLs) that provide information necessary to review the proposal. See Part VIII.D for instructions on how to mark proprietary proposal information. Save the information in a single file named "Project.doc".

The project narrative must include:

- Project Objectives.  
This section should provide a clear, concise statement of the specific objectives/aims of the proposed project.
- Merit Review Criteria Discussion.  
The 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 CONSIDER ONLY THOSE APPLICATIONS THAT ADDRESS SEPARATELY EACH OF THE MERIT REVIEW CRITERIA AND SUB-CRITERIA.

- American Recovery and Reinvestment Act of 2009, P.L. 111-5 (Recovery Act) Information:

This section should address how the project will promote and enhance the objectives of the Recovery Act, especially job creation and/or preservation, and economic recovery in an expeditious manner. The response must include quantitative data supporting the number of jobs created and/or preserved, as well as data supporting any other direct economic recovery impacts attributable to the performance and conduct of the project.

The above listed components of your Project Narrative combined, must be within the Narrative page limit specified 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.doc”.** Each resume must not exceed 2 pages when printed on 8.5” by 11” paper with 1 inch margins (top, bottom, left, and right) 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.

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

Publications. Provide a list of up to 10 publications most closely related to the proposed project. For each publication, identify the names of all authors (in the same sequence in which they appear in the publication), the article title, book or journal title, volume number, page numbers, year of publication, and website address if available electronically.

Patents: copyrights and software systems developed may be provided in addition to or substituted for publications.

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

Of the key personnel identified in this file, indicate the Principal Investigator(s) (PI). If multiple PIs are proposed, the offeror must provide the information indicated in the Eligibility Information section of this PA as part of this file.

The resume file does not have a page limitation.

**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 a cumulative budget for the total project period. Use the SF 424 A Excel, “Budget Information – Non Construction Programs” form found at <https://www.eere-pmc.energy.gov/forms.aspx>. 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 PART III). Save the information in a single file named “SF424A.xls”.

**e. American Recovery and Reinvestment Act of 2009, P.L. 111-5 (Recovery Act) Additional Budget Justification Information**

Offerors shall provide information which validates that all laborers and mechanics on projects funded directly by or assisted in whole or in part by and through funding appropriated by the Recovery Act are paid wages at rates not less than those prevailing on projects of a character similar in the locality as determined by Subchapter IV of Chapter 31 of Title 40, United States Code (Davis-Bacon Act). For guidance on how to comply with this provision, see <http://www.dol.gov/esa/whd/contracts/dbra.htm>.

To satisfy this requirement, please provide a written assurance that you will comply with the Davis-Bacon Act, as identified above, with the signature of the authorized representative of your organization. Save the information in a single file named “DavisBacon.pdf”.

**f. Letters of Commitment**

You must have a letter from each third party contributing cost sharing (i.e., a party other than the organization submitting the proposal) that proposes to provide all or part of the required cost sharing. **All Letters of Commitment must be attached to the Project Narrative File.** The letter must state that the third party is committed to providing a specific minimum dollar amount of cost sharing. In the budget justification, identify the following information for each third party contributing cost sharing: (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 cost sharing – 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)**

You must provide a separate budget (i.e., budget for each budget year and a cumulative budget) for each subawardee that is expected to perform work estimated to be more than \$100,000 or 50 percent of the total work effort (which ever is less). Use the SF 424 A Excel for Non Construction Programs or the SF 424 C Excel for Construction Programs. This form is found at <https://www.eere-pmc.energy.gov/forms.aspx>. Save each Subaward budget in a separate file. Use up to 10 letters of the subawardee's name (plus424.xls) as the file name (e.g., ucla424.xls or energyres424.xls).

**h. Subaward Budget Justification File**

Each Subawardee 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 and cost of each item; identify proposed contractual work and cost of each contractor; describe purpose of proposed travel, number of travelers and number of travel days; list general categories of supplies and amount for each category; and provide any other information you wish to support your budget). Subawardees should provide the name of their cognizant/oversight agency, if they have one, and the name and phone number of the individual responsible for negotiating the indirect rates. **See Appendix D for further information related to subawardee's budget justification.**

First-Tier Subawardee Budget Justifications shall provide information which validates that all laborers and mechanics on projects funded directly by or assisted in whole or in part by and through funding appropriated by the Recovery Act are paid wages at rates not less than those prevailing on projects of a character similar in the locality as determined by Subchapter IV of Chapter 31 of Title 40, United States Code (Davis-Bacon Act). For guidance on how to comply with this provision, see <http://www.dol.gov/esa/whd/contracts/dbra.htm>.

To satisfy this requirement, first-tier subawardees should provide a written assurance that they will comply with the Davis-Bacon Act, as identified above, with the signature of the authorized representative of the organization.

**i. Subaward Budget for Federally Funded Research and Development Center (FFRDC), if applicable**

If a FFRDC subawardee is to perform a portion of the work, provide a DOE Field Work Proposal in accordance with the requirements in DOE Order 412.1 Work Authorization System. This order and the DOE Field Work Proposal form are available at the following link: <http://www.management.energy.gov/documents/o4121.pdf>. Use up to 10 letters of the FFRDC name (plus .doc) as the file name (e.g., lanl.doc or anl.doc).

**j. Authorization for non-DOE or DOE FFRDCs**

Save the Authorization for non-DOE or DOE FFRDCs, as specified in the Eligibility Information section of this PA, in a single file named "FFRDC\_Auth.doc.

### Summary of Required Forms/Files

Your proposal must include the following documents:

Name of Document	Format	File Name
Field Work Proposal (DOE Form No 412.1)	Word	Proposal.doc
Project Summary/Abstract File	Word	Summary.doc
Project Narrative File, including required appendices (Letters of Commitment)	Word	Project.doc
Resume File	Word	Resume.doc
SF 424A Excel - Budget Information for Non-Construction Programs File	Excel	SF424A.xls
Subaward Budget File(s), if applicable	Excel	See Instructions
Subaward Budget for Federally Funded Research and Development Center (FFRDC), if applicable.	Word	See Instructions
Authorization from cognizant Contracting Officer for FFRDC, if applicable.	Word	FFRDC_Auth.doc

#### D. SUBMISSIONS FROM SUCCESSFUL OFFERORS

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 Sharing, if applicable
- Environmental Questionnaire

#### E. SUBMISSION DATES AND TIMES

##### Pre-application Due Date

Pre-applications are not required.

##### Application Due Date

Applications must be received by July 15, 2009, 11:59 PM Eastern Time. You are encouraged to transmit your application well before the deadline. **PROPOSALS RECEIVED AFTER THE DEADLINE WILL NOT BE REVIEWED OR CONSIDERED FOR AWARD. ALL OFFERORS MUST SUBMIT BY THE DUE DATE AND TIME SPECIFIED ON THE FRONT PAGE OF THE PROGRAM ANNOUNCEMENT**

## 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 organization are in FAR Part 31.

## H. SUBMISSION AND REGISTRATION REQUIREMENTS

### 1. Where to Submit

**APPLICATIONS MUST BE SUBMITTED THROUGH FEDCONNECT TO BE CONSIDERED FOR AWARD.** Submit electronic applications through the FedConnect portal at [www.FedConnect.net](http://www.FedConnect.net). Information regarding how to submit applications via Fed Connect can be found at [https://www.fedconnect.net/FedConnect/PublicPages/FedConnect\\_Ready\\_Set\\_Go.pdf](https://www.fedconnect.net/FedConnect/PublicPages/FedConnect_Ready_Set_Go.pdf).

Further, it is the responsibility of the offeror, prior to the Application due date and time, to verify successful transmission.

### 2. Registration Process Requirements

To submit an application in response to this PA, Offerors must be registered with FedConnect. Before you can register with FedConnect, you will need the following:

- A. Your company's DUNS (including plus 4 extension if applicable). If you don't know your company's DUNS or if your company does not have a DUNS you can search for it or request one at <http://fedgov.dnb.com/webform/displayHomePage.do>.
- B. A federal Central Contractor Registration (CCR) account. If your company is not currently registered with CCR, please register at [www.ccr.gov](http://www.ccr.gov) before continuing with your FedConnect registration.
- C. Possibly, your company's CCR MPIN. If you are the first person from your company to register, FedConnect will need to create a company account. Only a person who knows your company's CCR MPIN can do this. To find out who this is in your company, go to <http://www.ccr.gov/> and click **Search CCR**. Once you've found your company, locate the Electronic Business Point of Contact.

After the initial FedConnect account is created, employees can register themselves without the MPIN. If you are not sure whether your company has an account with FedConnect, don't worry. Complete the registration form and FedConnect will let you know (PLEASE REFER TO QUICK START GUIDE FOR QUESTIONS).

Offerors who are not registered with CCR and FedConnect, should allow at least 21 days to complete these requirements. It is suggested that the process be started as soon as possible. For those Offerors already registered in CCR, the CCR registration must be updated annually at

## Part V - PROPOSAL REVIEW INFORMATION

### A. REVIEW CRITERIA

#### 1. Initial Review Criteria

Prior to a comprehensive merit evaluation, DOE will perform an initial review to determine that (1) the offeror 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.

##### Topics 1-3

##### **Criterion 1: Project Description and Technical Approach**

###### **Weight: [30%]**

- Suitability of the proposed work towards meeting the 2015 and 2030 goals
- Degree of technical innovation as compared to the current state of the art
- Potential impact of the technical innovation on the levelized cost of energy (LCOE)
- Likelihood of positively impacting domestic manufacturing and deployment

##### **Criterion 2: Project Management and Statement of Objectives**

###### **Weight: [25%]**

- Adequacy, value and reasonableness of the performance schedule and quality of the plan in addressing barriers and risks, and approaches to overcoming identified barriers and risks. Failure to identify specific barriers and risks is considered a greater deficit than an uncertain plan for overcoming them.
- Degree to which the proposed plan is clearly stated, organized, achievable and technically feasible. Adequacy of proposed tasks, resources, deliverables, performance metrics, decision points, etc.

##### **Criterion 3: Qualifications, Roles, Responsibilities and Capabilities**

###### **Weight: [25%]**

- Capabilities, experience, qualifications and credentials of key personnel to support the proposed project
- As appropriate, adequacy of the letters of commitment for each team member's participation and/or cost share

- Adequacy of infrastructure and resources proposed to support the achievement of the proposed project objectives, including the capabilities of the Applicant and Participants to comprehensively address all aspects of the proposed project

**Criterion 4: Technology Transfer Plan Weight: [20%]**

- Comprehensiveness of plan to disseminate results of research to industry
- Likelihood that project will result in technology deployment and commercial development
- Clarity of explanation of intended market impact

**Topics 4 and 5**

**Criterion 1: Project Impact**

**Weight: [40%]**

- Extent to which proposed work will enhance or expedite manufacturing, testing and evaluation of solar technologies
- Suitability of the proposed work to support industry needs
- Extent to which equipment and facility needs are identified and justified

**Criterion 2: Project Management and Statement of Objectives**

**Weight: [20%]**

- Adequacy, value and reasonableness of the performance schedule and quality of the plan in addressing barriers and risks, and approaches to overcoming identified barriers and risks.
- Degree to which the proposed plan is clearly stated, organized, achievable and technically feasible. Adequacy of proposed tasks, resources, deliverables, performance metrics, decision points, etc.

**Criterion 3: Qualifications, Capabilities and Existing Resources**

**Weight: [40%]**

- Extent to which previous DOE and private sector investment is leveraged
- Capabilities, experience, qualifications and credentials of key personnel to support the proposed project
- As appropriate, adequacy of the letters of support from industry partners

**3. Other Selection Factors**

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

- Technical diversity of projects
- Breadth and depth of teaming arrangements
- Cost share from industry partners or others, above minimum amount required (no cost share is required from Labs)
- Selection of Applications that promote and enhance the objectives of the American Recovery and Reinvestment Act of 2009, P.L. 111-5, especially job creation, and/or

preservation and economic recovery in an expeditious manner.

## **B. REVIEW AND SELECTION PROCESS**

### **a. Merit Review**

Applications that pass the initial review will be subject to a merit review in accordance with the guidance provided in the "Department of Energy Merit Review Guide for Financial Assistance and Unsolicited Proposals." This guide is at <http://www.management.energy.gov/documents/meritrev.pdf>.

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

### **b. Selection**

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

### **c. Discussions and Award**

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

## **C. ANTICIPATED NOTICE OF SELECTION AND AWARD DATES**

DOE anticipates notifying offerors selected for award by the end of August 2009.

## **Part VI - AWARD ADMINISTRATION INFORMATION**

### **A. AWARD NOTICES**

#### **1. Notice of Selection**

DOE will notify offerors selected for award. This notice of selection is not an authorization to begin performance.

Organizations whose proposals have not been selected will be advised as promptly as possible.

#### **2. Notice of Award**

Selected offerors will be contacted to revise the FWP if necessary and finalize the award.

## **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>)

### **2. Special Provisions Related to American Recovery and Reinvestment Act**

Special Provisions relating to work funded under American Recovery and Reinvestment Act of 2009, Pub. L. 111-5 shall apply. Also, the Office of Management and Budget may be promulgating additional provisions or modifying existing provisions. Those additions and modifications will be incorporated into the Special Provisions as they become available.

### **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](http://www.gc.doe.gov/financial_assistance_awards.htm).

## **C. REPORTING**

Awards under this FOA will be funded, in whole or in part, with funds appropriated by the American Recovery and Reinvestment Act of 2009, Pub. L. 111-5, (Recovery Act or Act). Be advised that Recovery Act reporting requirements may apply to projects funded by the Act. The Reporting requirements will be negotiated after selection and identified in the award agreement.

## **PART VII - QUESTIONS/AGENCY CONTACTS**

### **A. QUESTIONS**

Questions regarding the content of the announcement must be submitted through the FedConnect portal. You must register with FedConnect to respond as an interested party to submit questions, and to view responses to questions. It is recommended that you register as soon after release of the PA 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](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 FedConnect should be directed by e-mail to [support@FedConnect.net](mailto:support@FedConnect.net) or by phone to FedConnect Support at 1-800-899-6665.

### **B. AGENCY CONTACT(S)**

Name: Andrea Lucero

Fax: 303-275-4754

Please note that all questions must be submitted via FedConnect, as indicated above.

## **PART VIII - OTHER INFORMATION**

### **A. MODIFICATIONS**

Notices of any modifications to this announcement will be distributed through the FedConnect portal. You can receive an email when a modification or an announcement message is posted by registering with FedConnect as an interested party for this PA. It is recommended that you register as soon after release of the PA as possible to ensure you receive timely notice of any modifications or other announcements.

### **B. GOVERNMENT RIGHT TO REJECT OR NEGOTIATE**

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

### **C. COMMITMENT OF PUBLIC FUNDS**

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

### **D. PROPRIETARY APPLICATION INFORMATION**

Patentable ideas, trade secrets, proprietary or confidential commercial or financial information, disclosure of which may harm the offeror, 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 offeror 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 offeror 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 offeror.”

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 offeror) 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, nondiscretionary administrative activities. The offeror, 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.

Special Protected Data Statutes. This program is covered by a special protected data statute. The provisions of the statute provide for the protection from public disclosure, for a period of up to 5 years from the date of its development, of first-produced data that would be trade secret, or commercial or financial information that is privileged or confidential, if the information had been obtained from a non-Federal party. For National Laboratories and FFRDCs, the data rights clause in Offeror’s Management and Operating (M&O) Contract will apply. For other types of organizations (e.g., private industry) that partner with Labs, the data resulting from the testing and evaluation will be protected from public disclosure for up to five years, with some exceptions for data of a general nature that demonstrates progress toward DOE’s programmatic goals. DOE will have the right to use the data for Government purposes. The exact terms and conditions of the data use and public release will be set forth in the Lab subcontract and will be based on 10 C.F.R. 600.325, Appendix A, “Rights in Data – Programs Covered by Special Data Statutes.” This provision will identify data or categories of data first produced in the performance of the award that will be made available to the public, notwithstanding the statutory authority to withhold data from public dissemination, and may also identify data that will be recognized by the parties as protected data. Labs must consult with the Golden Field Office Patent Counsel to obtain the data rights clause to use in their subcontracts under this Announcement.

## **G. NOTICE OF RIGHT TO REQUEST PATENT WAIVER**

Offerors and team members (if any) 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 offeror or team member 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](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 offerors 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**

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

## REFERENCE MATERIAL

### Appendix A – Definitions

“**Amendment**” means a revision 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 Offeror is selected, which contains the negotiated terms and conditions for providing Financial Assistance to the Offeror. 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 Offeror Cost Share.

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

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

"**Cooperative Agreement**" means a Financial Assistance instrument used by DOE to transfer money or property when the principal purpose of the transaction is to accomplish a public purpose of support or stimulation authorized by Federal statute, and Substantial Involvement (see definition below) is anticipated between DOE and the Offeror during the performance of the contemplated activity.

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

“**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>.

“**Credential Provider**” is an organization that validates the electronic identity of an individual through electronic credentials, PINS, and passwords for Grants.gov. Funding Opportunity Announcements which require application submission through Grants.gov require that the individual applying on behalf of an organization first be registered with the Credential Provider at <https://apply.grants.gov/OrcRegister>.

**“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](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 submit grant applications on behalf of their organization through Grants.gov.

**“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 Offeror or Participant to accomplish a public purpose of support authorized by Federal statute through Grants or Cooperative Agreements and subawards. 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 Offeror 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.

**“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 Offeror 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>

**“Industry Interactive Procurement System (IIPS)”** is DOE’s Internet-based procurement system which allows access to DOE’s business opportunities database, allows user registration and submittal of Applications: <http://e-center.doe.gov/>.

**“Key Personnel”** means the individuals who will have significant roles in planning and implementing the proposed Project on the part of the Offeror 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 login to Grants.gov to assign privileges to the individual(s) authorized to submit applications 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).

**"Offeror"** 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.

**"Participant"** for purposes of this Funding Opportunity Announcement only, means any entity, except the Offeror 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.

**"Program Announcement (PA)"** 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.

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

**"Proposal"** is the term used in IIPS meaning the documentation submitted in response to a Funding Opportunity Announcement. Also see Application.

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

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

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

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

**"Technology Investment Agreement (TIA)"** is a new type of assistance instrument for DOE, but they have been used by the Department of Defense for many years to support or stimulate

research projects involving for-profit firms, especially commercial firms that do business primarily in the commercial marketplace. TIAs are different from grants and cooperative agreements in that the award terms may vary from the Government-wide standard terms (See DOE TIA regulations at 10 CFR Part 603). The primary purposes for including a TIA in the type of available award instruments are to encourage non-traditional Government contractors to participate in an R&D program and to facilitate new relationships and business practices. A TIA can be particularly useful for awards to consortia (See 10 CFR 603.225(b) and 603.515, Qualification of a consortium).

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

## Appendix B – Personally Identifiable Information

In responding to this Announcement, Offerors 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 Offerors must not include in the files listed above:

- 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 Offerors may include in the files listed above:

- 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.

## Appendix D – Budget Justification for Subawardees (Subrecipients)

### Recovery Act: National Laboratory Call for Foundational Photovoltaics and Concentrating Solar Power Research and Development Program Announcement Number: DE-FOA-0000087

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.

Each subawardee (with estimated costs of \$100,000 or more) must complete a budget and budget justification. For each subawardee with estimated costs less than \$100,000, provide the Statement of Project Objectives task(s) that are being performed, the purpose/need for the effort, and a basis of the estimated costs that is considered sufficient for DOE evaluation.

Fee or profit will not be paid to the award recipients or subrecipients of financial assistance awards. Additionally, foregone fee or profit by the awardees or subawardees shall not be considered cost sharing under any resulting award.

#### Personnel - Subawardees

List costs solely for employees of the Subawardee. 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 any 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
<b>Budget Period 1</b>							
<b>Domestic Travel</b>							
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	
<b>International Travel</b>							
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	
<b>Budget Period 1 Total</b>						<b>\$9,300</b>	
(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
<b>Budget Period 1</b>					
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 subawardee(s) must provide and justify all costs related to subs, vendors, contractors, and consultants. See example below.

#### 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.

Vendor 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
Total Contractual		\$48,000	\$32,000	\$16,000	\$96,000

### 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 should be justified in this category. 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 any 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 subawardee. 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.** 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%

**American Recovery and Reinvestment Act Information:**

Provide information which validates that all laborers and mechanics on projects funded directly by or assisted in whole or in part by and through funding appropriated by the Recovery Act are paid wages at rates not less than those prevailing on projects of a character similar in the locality as determined by subchapter IV of Chapter 31 of title 40, United States Code (Davis-Bacon Act). For guidance on how to comply with this provision, see <http://www.dol.gov/esa/whd/contracts/dbra.htm>.

To satisfy this requirement, the Awardee and First-Tier Subawardees must provide a written affirmation that you will comply with the Davis-Bacon Act, as identified above, along with the signature of the authorized representative of your organization.